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CONTENTS

	PAGE
Editorial Notes	89
Transport Bill Defects	91
Sleeper Supply and Railway Speeds in 1947	92
Gas Turbine Electric Locomotives	92
New South Wales Government Railways	92
Organisation of the Locomotive Running Department	93
Main-Line Railway Electrification	94
Letters to the Editor	95
The Scrap Heap	96
Overseas Railway Affairs	97
Locomotive Availability	99
Railway Civil Engineering as a Career	100
Expediting Miscellaneous Traffic on the L.M.S.R.	101
British-Built Gas Turbine Locomotive for G.W.R.	104
Process Heating by Valve Generators	106
Personal	107
Ministry of Transport: Accident Report	111
Permanent Way Institution Annual Meeting	112
The Transport Bill: Correspondence	117
Notes and News	117

INDEX

An index to the eighty-fifth volume of THE RAILWAY GAZETTE covering the issues from July 5 to December 27, 1946, has been prepared, and is now available free of charge on application to the publisher.

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THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1

The Transport Bill and Railway Administration

CONSIDERABLE relief will be felt in industrial and commercial circles at the remarks made by Mr. G. R. Strauss, Parliamentary Secretary to the Ministry of Transport, at the annual dinner of the Permanent Way Institution held in London on Saturday last. Speaking about the Transport Bill, he stated that the Ministry was anxious that the change of ownership of all the transport services, and the setting up of the new administrative machinery, should take place with the minimum dislocation. He added that it would be folly, therefore, to try and effect any drastic and fundamental administrative changes on the taking-over day, and that when the Ministry was dealing with the intricate organisation of a service so important to our national welfare as transport, it was far better to proceed step by step and be certain, rather than attempt too much too quickly. These admirable sentiments, we imagine, will be widely endorsed, and also his contention that, pending the realisation of the full benefits of integration, which he agreed would take some years to fructify fully, neither industrialists, farmers, nor the general public should at any stage in the process suffer any inconvenience.

* * * * *

Functional or Regional Organisation

Mr. Strauss also dealt with the view held in some quarters that the organisation proposed under the Bill would have been better if it had been on a regional rather than a functional basis; but he claimed that, although this proposal had been considered very carefully, it was felt that at the outset it would be wholly impracticable to re-organise the entire transport system of the country on a regional basis. It would mean, he said, chopping up immediately into geographical sections the existing railway and canal systems and long-distance road services, a course which would result in appalling dislocation. Another unfortunate, but inevitable, result would be, he suggested, the transfer of the whole direction and management of the nation's transport to the railways, as they are predominant in size, a feature which would be contrary to the whole principle of integration. We suggest that there are ways and means of overcoming the objections he raised, but it is interesting to note that he reached the conclusion that de-centralisation of many of the functions of the transport services certainly will take place, and, although he could in no way commit the proposed British Transport Commission, it might well be that a full-scale regional organisation will be developed.

* * * * *

Transport Bill Discussion

For several weeks there has been animated correspondence in *The Times* on the Transport Bill. A selection of these letters has been reproduced in our columns, and elsewhere in this issue the correspondence is carried a stage further by Mr. Douglas Jay, M.P., Lord Balfour of Burleigh, and Sir Ronald Matthews. Mr. Jay suggests that the proposals made by the railways in "British Railways and the Future" and by the L.N.E.R. in "The State and the Railways" are based on a subsidy for the railways. He goes on to argue that there are great economies to be gained from complete co-ordination, and that this is impracticable without State unification of ownership. Lord Balfour of Burleigh refutes the suggestion that the L.N.E.R. scheme would involve a subsidy, because the essence of the plan would be that saving under the arrangement put forward would be passed on wholly to the trader. A point which seems to have escaped Mr. Jay is that between the wars, one of the great difficulties under which the railways laboured arose from the fact that their principal competitors, the road hauliers, in practice enjoyed a subsidy because their track—the public highway—was provided out of public funds, whereas the railway track is privately built and has to be maintained and signalled by the railways themselves. Sir Ronald Matthews stresses the desirability of a full and impartial investigation before the Government's proposal to nationalise transport is implemented, and expresses the hope that it is not yet too late to persuade the Government to set an inquiry on foot. As Sir Ronald Matthews points out, the Transport Bill has been marked by universal disapproval of users and suppliers of transport alike, and indeed it is difficult to find any quarter in which it has been given more than, at the best, lukewarm support.

Lt.-Colonel G. L. Hall

Lt.-Colonel G. L. Hall, O.B.E., Signal Engineer, Southern Railway, whose death we record with regret, and of whom a portrait and biography appear elsewhere in this issue, was the only Inspecting Officer of Railways to leave the public service to take charge of a signalling department. When he went to the Southern in 1927, that railway had already proved the value of the 4-aspect light-signal system, and was contemplating its extension. When the work below London Bridge was done shortly afterwards, the North Kent East Junction signal box was given a power frame having electrical in place of mechanical lever interlocking, and, on Colonel Hall's advice, the company has remained faithful ever since to that arrangement whenever a power signal box has been required. Although not unwilling to make a change when thoroughly persuaded of its advantage or necessity, he was convinced that this practice was the best suited to the conditions obtaining on the Southern. In addition to the complete re-signalling of the termini at Waterloo and Victoria, and their approaches, and the Brighton main line and terminus, a large amount of new signalling work has been carried out under his direction. The provision of special arrangements before or during the war, under defence measures, included a substantial increase in telecommunication equipment.

* * * *

C.P.R. Chairman & President

Mr. D'Alton C. Coleman, C.M.G., who, as announced briefly last week, retires on February 1 next, from the offices of Chairman & President of the Canadian Pacific Railway Company, but remains a Director, has been President since 1942, and since 1943 has been also Chairman, in succession to the late Sir Edward Beatty. Mr. Coleman has served the Canadian Pacific for over 47 years, longer than any of his predecessors in the Presidency, and he passed the usual retiring age two years ago; and he feels that the time has come in the interests of the company and himself that the burden of responsibility should be placed on younger shoulders. In addition to his long connection with, and direction during a critical war period of, a great transport undertaking, he has rendered notable services to educational, health, and many other fields; these services have been recognised in the honorary degrees of LL.D. and D.C.L. conferred on him by the University of Manitoba and Bishop's University, respectively, his investiture with the rank of Knight of Grace of the Order of St. John of Jerusalem, and in many other ways. Portraits and biographies of Mr. Coleman and of Mr. W. M. Neal, C.B.E., Vice-President, C.P.R., who succeeds him as Chairman & President, appear on another page.

* * * *

A Bank Chairman on Nationalisation

Mr. Edwin Fisher, in his address to stockholders of Barclays Bank Limited recently, pointed to the need for bringing Government expenditure into a proper relationship with the resources available to meet it; this required the curtailment of Government expenditure and the easing of taxation to a point where it would no longer be a positive discouragement to enterprise. The fundamental problem of this country would yield only to a great expansion in its export trade secured in the short run and sustained in the long run. It would not be sufficient to reach the target of exports of 75 per cent. above their pre-war volume; those exports would have to be held at that level in the face of developing competition of the most vigorous kind. Of nationalisation, Mr. Fisher said that its pursuit as an end in itself, without regard to other considerations, would be an invitation to disaster. It was a matter to be approached from the strictly technical angle, and the answer to the question as to what form of ownership or control was best in a particular case, can be expected only from a thorough and impartial investigation of the facts.

* * * *

Railway Civil Engineering as a Career

The railway service in all its branches calls for a great concentration of effort on the part of everyone, from the time they enter the service until they retire, and the young man intending to take up railway civil engineering as a career should be under no illusion as to the exacting life he is embracing.

How true this is, was shown by Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway, in his presidential address to the Permanent Way Institution on January 18, which is given in abstract in other pages this week. There are several essentials to success. The young recruit must have attained a suitable educational standard, must be really keen on railway work, must be of the type who is trainable and who will qualify as a civil engineer, and, last but not least, must be completely trustworthy and be prepared when the need arises to throw aside all personal considerations in the interests of his job. In his address, Mr. Robertson groups the various branches of employment under their respective headings, and traces the hypothetical careers of men in the permanent way, civil engineering, new works, and clerical branches of railway work. Finally, he deals with what he considers the ideal training for the young civil engineer, who, although he must, finally, acquire a fully detailed grasp of at least one section, should not be allowed to specialise too drastically in any one department in the early days, and who must be prepared to move about from section to section.

* * * *

The L.N.E.R. in 1946 and 1947

In the January issue of the *London & North Eastern Railway Magazine* Sir Ronald W. Matthews, Chairman, and Sir Charles Newton, Chief General Manager, address messages to the staff of the railway. Sir Ronald Matthews, commenting on the fact that the progress that it has been possible to make with the major schemes planned for post-war years has been disappointingly slow, says that the short answer is that throughout industry men and machines are weary after six years of war work. Sir Charles Newton develops this so far as the L.N.E.R. is concerned, and points out that the overriding reason for the imposition of embargoes on freight traffic on a number of routes, has been the non-availability of locomotives. The reason has been partly the advancing average age of the company's fleet, which by the end of 1945 had risen to the high level of 32.51 years, and the fact that during the war the locomotives had to submit to abnormal use, together with the inevitable lack of an adequate measure of new construction. As a result mainly of shortage of labour and materials, the "under and awaiting repair" figure has risen seriously. Less than 75 per cent. of the stock is available for traffic, and the figure for heavier types is as low as 67 per cent.

* * * *

L.M.S.R. Zonal Collection and Delivery Scheme

Before the war the L.M.S.R. had put into operation various schemes to expedite the delivery of miscellaneous goods consignments. These arrangements were mainly local in scope, and as soon as the end of the European war was seen to be approaching, the company began to prepare a plan that would extend similar benefits to the whole area served by its system. The principles of the new zonal collection and delivery scheme are described elsewhere in this issue. It has the primary object of providing a one-day transit for miscellaneous traffic between most points by concentrating the handling of such traffic at a smaller number of stations, thus increasing the possibility of assembling consignments in sufficient quantities for forwarding by wagon direct to destination zones. Trunk road services radiating from the zonal centres, linking up with road motors based at the railheads, will provide for the delivery of consignments which otherwise would arrive too late to reach the consignees that day. Although considerable extra road mileage is entailed, various economies will arise from dispensing with certain station accommodation, reduced shunting, and wagon-mileage, some examples of which in the zones already operating, based on Derby and Stoke, are described in our article.

* * * *

A Very Unusual L.P.T.B. Accident

It is interesting to note from Sir Alan Mount's report on the buffer stop collision at Edgware, Northern Line, L.P.T.B., on July 27, 1946, summarised on page 111, that London Transport has no record of the dead-man's handle coming into action, for the intended purpose, as a consequence of a man collapsing on a train in motion in passenger service. In the last 30 years there have been only two cases on the

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system, but the trains were standing at a platform. In this instance, the driver collapsed from heart trouble, the existence of which was totally unsuspected, while entering the terminus, but the train ran on and no dead-man's action followed. It was extremely difficult to determine what actually took place, but the fact that the reversing key was found detached from the controller and the head and tail light switches reversed, with certain other details, inclined Sir Alan to the view that the man had imagined mistakenly that the train had stopped and had begun the procedure for changing over. His seizure then became complete and death supervened shortly after. His particular trouble was very difficult to diagnose, and the medical view is that no system of examination could reveal every risk of it. This case was, in fact, a pure accident, and no blame rested on anybody.

Transport Bill Defects

THE Committee Stage of the Transport Bill will commence shortly and, judging from the many criticisms which the Bill's provisions have aroused, there seems little doubt that extensive modifications of a number of the existing clauses will be required to make it workable.

We imagine it will be agreed generally that the British Transport Commission has a most onerous task in providing an efficient, adequate, economical, and properly integrated system of public inland transport and dock facilities within Great Britain. As it is to be responsible for the conveyance of goods and passengers by road, rail, and inland waterways, London passenger transport, the provision of adequate port facilities, and the operation of railway hotels and catering services, we feel its task is of such magnitude as to make it essential that a larger number of members should be appointed. In any case it seems desirable that a person conversant with docks and railway steamer services should be a member of the Board, specially having regard to the contributory value of such facilities to the railway undertaking proper.

Then we regard it as very undesirable that the Minister of Transport should have the right, as proposed by the Bill, to give directions to the Commission as to the exercise and performance by it of its functions in relation to matters "which appear to him to affect the national interest." This phrase is so wide that it might easily be interpreted to result in the Minister completely dominating the Commission's policy—a possibility which, to say the least, is extremely disquieting and should be removed.

We also feel it is undesirable that the Minister should be in a position, as suggested in Clause 4 (5) of the Bill, to order the Commission to discontinue any of its activities or dispose of any part of its undertaking, nor do we think that the Minister should be able to order the Commission to omit from its annual report to Parliament any reference to such matters if the Minister considers that their mention would be "against the national interest," an extremely comprehensive phrase.

The Commission is to be assisted in its onerous duties by a number of Executives, but, as railway hotels are to be taken over on January 1, 1948, with certain other ancillary businesses of the railways, it is difficult to understand why the creation of a Hotels Executive is to be deferred until a later date, termed the "appointed day," instead of becoming operative concurrently with the appointment of the other Executives. So far as the constitution of these bodies is concerned, we think it is most undesirable that their members are to be appointed by the Minister of Transport and not by the Commission. We are also doubtful as to the wisdom of the provision that the Minister of Transport must approve the functions which the Commission decides to delegate to the Executives, as surely this is a matter which the Commission is fully competent to settle.

The consultative committees, apparently, are to be very similar to the Local Railway & Traders' Conferences set up under the Railways Act, 1921. These could hardly be termed a great success and we suggest it is undesirable that the Minister should have the power to decide the areas in which the Area Committees should function, or the power to abolish any of them. We observe, however, that the Bill proposes that a Transport Users' Consultative Committee for both passenger and goods traffic shall operate in Scotland

and a similar body in Wales—a principle which nationalism may well press to be extended to other features of the Bill. It is also a point for criticism that the recommendations of the Central Transport Consultative Committee are to be sent direct to the Minister (as well as the Commission) and that he has the power to direct the Commission to carry them out without giving the Commission an opportunity of expressing its views—a queer way of assisting the Commission to facilitate co-ordination!

Clause 15 empowers the Commission to disclaim any agreements entered into or varied by vested undertakings on or after November 19, 1945, and we imagine the railway companies will seek some assurances on this point, as in the normal course of business they are entering daily into a large number of contracts and agreements.

Clause 39 empowers the Commission to prepare a scheme for submission to the Minister covering the property, rights, powers, obligations, and liabilities of the Railway Clearing House, and from our knowledge of their extensive nature, it is clear that this alone will be no inconsiderable task.

It is a matter for comment that the Bill gives not the slightest indication of how co-ordination of the various transport services is to be tackled. The Government doubtless will contend that this is entirely a matter for the Commission, but, having regard to the vital importance of this matter to the traders and the public, it can fairly be argued that the community has the right to some indication of the broad lines which will be followed.

It is noteworthy that a steadily growing number of Chambers of Commerce, Chambers of Trade, and representative bodies of traders are passing resolutions against the Bill, and in a number of cases organising petitions urging that there should be a public inquiry before the provisions of the Bill become effective. Having regard to their probable position under the Bill, their action in this respect readily can be understood.

British Railwaymen's Visits Abroad

IN recent months a number of visits to America have been made by British railwaymen, and the practice—an excellent one which was extensive before the outbreak of war—is likely to be pursued increasingly in the future. There can be no doubt that the exchange of information and views which result from these visits to the railways of other countries, is valuable.

One of the matters which obviously must claim the attention of British railwaymen visiting the United States at the present time, is the progress which is being made in that country in diesel-electric traction, particularly in view of the present need in this country to economise in the use of coal as motive power fuel.

The first indication of any intention seriously to experiment with diesel-electric traction in this country, apart from the railcars and shunting locomotives which have been in operation for some years, was given by Sir Eustace Missenden in his statement of the Southern Railway's plans for future development, reported in our November 8 issue. The problem is well worth tackling on the basis of the cost of diesel fuel in this country, and the need which would arise for special maintenance facilities, if diesel-electric locomotives were introduced for main-line working, set against such factors as the increase in the price of coal for generating electricity, and the working costs of a section of line such as the Manchester—Sheffield route, which is scheduled for electrification.

We were glad to notice that the Southern Railway selected some of its younger men to investigate modern operating methods in the U.S.A. In past years, senior officers have been chosen, as a general rule, to make such inquiries, and may have been too set in their ideas to extract the full benefit from their exploratory visits. Other railways might, we suggest, follow the example of the Southern by sending on these expeditions some of their younger men, who might be impressed more readily by new developments in practice, such as diesel operating. And we would suggest not only visits to the U.S.A.; there is much worth studying in railway engineering and operation in other countries, such, for example, as Switzerland, Sweden, France, Australia, Argentina, and India.

Sleeper Supply and Railway Speeds in 1947

IN a speech to the Permanent Way Institution on January 18, Mr. G. R. Strauss, Parliamentary Secretary to the Ministry of Transport, dashed any hopes that may have been held—other than in railway circles—that 1947 would witness some further progress towards the pre-war level of railway speeds. In fact, there is more likelihood, and almost a certainty, that there will have to be a reduction even in the present level.

The facts he gave are, briefly, that before the war the railways used about 4½ million sleepers annually. During the war years, the input had to be restricted to just under 3 million, which meant that by 1946, arrears of nearly 10 million sleepers had accumulated. To wipe off these arrears over five years, 2 million sleepers would be required annually, which, with the 4 million required for ordinary maintenance, meant using altogether 6 million sleepers each year.

Unfortunately, there was not the slightest chance of the Government being able to obtain this number of sleepers, or anything like it. Although pre-stressed concrete sleepers had proved capable of standing up to main-line traffic, and a number of new factories were being planned to produce them, nothing like the target figure of one million was likely to be achieved this year. Consequently, the total possible supply would fall far short of requirements, and restrictions of speed might be necessitated. Such a step would cause serious concern to those responsible for the efficiency of the railways, but safety must come first.

Supplies of steel rails also are likely to fall far short of requirements. The average pre-war intake was 211,000 tons, but during the war this was reduced to 157,000 tons, and so a substantial deficit accrued. Today, owing to the exceptionally heavy demands for steel for home and export, it has been estimated that the overall shortage of supplies compared with demands amounts to 500,000 tons during the first quarter of 1947. It is, therefore, evident that it will be as impossible this year to meet the steel needs of the permanent way as its timber needs.

These factors, it will be realised, are likely to prevent a return to higher speeds for a considerable time, as additional restrictions of speed doubtless will have to be imposed for safety reasons on various parts of the railway systems until the necessary rails and sleepers are available and have actually been used in the track—a somewhat disconcerting prospect for both passenger and freight train speeds.

* * * * *

Gas Turbine Electric Locomotives

CONSIDERABLE interest has been aroused during recent months in the possibilities of gas turbine locomotives. Some important developments have been taking place in Switzerland, and also in the United States. In this country, the Great Western Railway has decided very wisely to give serious attention to this form of traction, and orders have been placed for two experimental locomotives, one with the Metropolitan-Vickers Electrical Co. Ltd., and the other with British Brown-Boveri Limited. A short description of the locomotive to be built by Brown-Boveri appeared in *The Railway Gazette* of November 22, 1946, and in this issue we are able to give some information about the Metropolitan-Vickers locomotive.

Each of the two new locomotives is to have a continuous rating of 2,500 h.p., and the overall dimensions and total weight are approximately the same in each case. There is, however, one noticeable difference in the wheel arrangement. The Metropolitan-Vickers engine is to have two six-wheel bogies, giving a total of six driving axles, each having a separate axle-mounted traction motor. The whole of the weight of the locomotive—in this case 120 tons—is available for adhesion. With the Brown-Boveri locomotive, however, whereas the total weight is 113 tons, the adhesive weight is only 75 tons, carried presumably on four driving axles.

The gas turbine in each case will be of the well-known open-circuit type. In the Brown-Boveri locomotive there will be one turbine which will drive the compressor and at the same time deliver useful power to the generator. In the Metropolitan-Vickers design, however, there are two separate

turbines, arranged in series. The first is a single-stage wheel driving the air compressor and auxiliaries, and the second is a multi-stage power-output turbine driving the generator. It is interesting to note that experience gained during the development of the Metrovick F/2 turbo-jet aircraft engine has been of value in designing the turbine plant for the new locomotive, in particular with regard to the design of the axial flow air compressor.

* * * * *

New South Wales Government Railways

IN the year ended June 30, 1946, the earnings of the New South Wales Government Railways were £31,313,410, a decrease of £263,727. Working expenses increased from £24,673,209 to £24,933,674, but during the year special debits included in these expenses totalled only £246,526, as compared with £1,129,583 in 1944-45. Eliminating these special debits in the two years, the working expenses in the year under review were £24,687,148, an increase of £1,143,522. The combined effect of the decline in revenue and the increase in working expenses had a total adverse influence on the finances of £1,407,249. After meeting all working expenses and capital charges, there remained a surplus of £149,588. The Commissioner for Railways, Mr. T. J. Hartigan, points out in his report that the increased working expenses were due to factors entirely beyond the control of the administration, and that these uncontrollable increases have had the effect of adding £6,375,000 a year to the working expenses since 1939. Among the principal items making up this amount were wages awards and basic wage variations (£3,425,000), extra holidays and retiring leave (£204,000), and increased costs of materials (£1,503,000). Mr. Hartigan points out that labour and materials costs show no signs of decreasing, and that should a 40-hour week eventuate, the working expenses of the department would continue to increase. In order to balance the situation, it will be necessary to gain commensurate increases in revenue, and to ensure this being done, he emphasises the necessity of the department receiving coal supplies sufficient to handle the whole of the available traffic. Operating results for the year are compared in the table below:

	1944-45	1945-46
Miles open	6,127½	6,127½
Passenger journeys	254,099,105	267,423,100
Total miles run	43,066,676	43,269,908
Operating ratio, per cent.	78·14	79·63
Percentage return on capital	£4 10s. 6d.	£4 2s. 10d.
	£	£
Capital expenditure	153,099,820	154,976,015
Earnings	31,577,137	31,313,410
Working expenses	24,673,209	24,933,674
Profit on working	6,903,928	6,379,736
Surplus after charges	544,903	149,588

Coal shortage affected the department seriously during the year, particularly in December, 1945, when a coal strike brought a critical situation. Passenger services were restricted at various times during the year, but in spite of this, a record number of 267,423,100 passenger journeys were made, representing an increase of 13,000,000 over the previous year. The coal situation affected goods traffic more adversely, only 15,872,431 tons being hauled, as against 17,792,891 tons in 1944-45. Every endeavour was made to carry essential traffic, but many thousands of truck loads of certain commodities had to be refused transport. Train-mileage totalled 43,269,608, an increase of 202,932 miles. During the year the department increased its locomotive stock by the construction of five new "C-38" class non-streamline 4-6-2 locomotives. Five more of these engines have been built by the Clyde Engineering Company, and the department is constructing a further 20 in its own workshops. These engines are equipped throughout with roller bearings, and are suitable for speeds up to 80 m.p.h. They are assigned principally to southern line working, and regularly haul the interstate expresses between Sydney and Albury, the run of 400 miles being accomplished without change of engine.

To improve services in country areas, approval has been given for work to begin on the construction of ten two-car, and ten three-car diesel-hydraulic trains. The three-car trains are being designed to run at speeds up to 70 m.p.h., and will be air-conditioned, with buffet accommodation. Less important branch-line services will be worked by the two-car units, at speeds ranging up to about 60 m.p.h. The depart-

ment also is constructing 78 steel main-line carriages, which will provide four new trains on the Sydney—Newcastle service, and eight daylight express trains to relieve the heavy night mail and express services.

The principal engineering work completed during the year was the new Hawkesbury River Bridge, which was described and illustrated in our August 16, 1946, issue. Large railway construction works in hand include the duplication of the line between Cootamundra and Junee, and the provision of four tracks between Lidcombe and Penrith. Progress was made also on the Circular Quay section of the City Railway, to provide a connection between St. James and Wynyard, and on the cross-country line between Sandy Hollow and Maryvale. The report is illustrated with numerous photographic reproductions of locomotives, rolling stock, and engineering works, including a full-page plate of the Hawkesbury River Bridge.

Organisation of the Locomotive Running Department

WE referred briefly in our January 17 issue to the paper entitled "Organisation and Carrying Out of Examinations and Repairs of Locomotives at Running Sheds in Relationship to Locomotive Performance and Availability," which was presented by Lt.-Colonel H. Rudgard, O.B.E., to the Institution of Locomotive Engineers on January 15. A summary of the paper, published elsewhere in this issue, records some of the highly individual and successful novelties introduced under Colonel Rudgard's direction as Superintendent of Motive Power, L.M.S.R.

Perhaps the most important of all these reforms is the institution of the "X" examination and repairs. Briefly, this means that when an engine is due for washing-out, it is bound to be stopped for the greater part of 24 hr. anyway, so advantage is taken of this opportunity to put it through a sort of lightning overhaul, everything possible being done to minimise the repairs that may be required before the next "X" day. The importance of this system is very far-reaching, and the degree to which it contributes towards the elimination of engine failures in traffic can hardly be over-estimated. It does, however, depend largely for its success upon the exact observance of the rules governing the washing-out dates—a fact which tempted Mr. Holcroft, in the ensuing discussion, to ask how engines which took up temporary abode in other districts than their own, could be washed out on the proper dates during the time of their wanderings. Indeed, he cited a case of a locomotive which, because its last washing-out date was unknown at its temporary shed, went for more than 28 days without a washout. Mr. Cyril Williams, too, though looking at the matter from a slightly different angle, said that the time had come when the strict rules under which aeroplanes or diesel locomotives were stopped for overhaul after a prescribed period—a deaf ear being turned to all pleadings for keeping them in traffic—should also apply to steam locomotives. That, of course, is the essence of Colonel Rudgard's "X" system.

Another highly novel idea, contained in the paper, and one which has been introduced only recently, is that of the "casualty league." In this, the various motive power districts constitute, in effect, teams in a football league. Points are awarded to them for each four-weekly period, on a basis of miles run per engine casualty, using the average for the year 1945 for comparison. The points obtained by each district are aggregated, and the totals indicate the league positions of the various districts. Challenge shields are awarded to the ten top districts, for exhibition until the following year's results are obtained. The introduction of this system, based as it is upon a sound insight into human nature, should go far in contributing towards improved mechanical condition in the locomotives which are affected by it.

Until recently, much trouble was experienced on certain of the older L.M.S.R. locomotives through hot boxes, which was due chiefly to an inherent defect in design, namely, insufficient bearing area. Realising that it was not practicable to modify the design, experiments were made to reduce the number of hot boxes by using an especially effective blend of lubricant. As a result the "W" oil, which has given such spectacular results on the L.M.S.R., was evolved. Consisting of 85 per cent. bright

mineral oil and 15 per cent. rape oil, it has reduced the number of hot axleboxes on 0-8-0 locomotives to little more than one-quarter of the number encountered annually before its introduction in 1943. This is a particularly fine achievement, and one with which Colonel Rudgard can feel great satisfaction.

A fourth item, which is dealt with at length in the paper, is the introduction of a special training scheme for apprentices in the running sheds. This was prompted by the observation that fitters transferred to running-shed work from other departments took time to develop the special skill, initiative, and resource which are so necessary in the motive power department. The need for these qualities is all the more apparent when it is remembered that locomotives repaired in running sheds, unlike those emerging from the works, must be put on revenue-earning work at once and cannot be spared for the luxury of a trial trip. Very sensibly, the training scheme is arranged to include a year's work in the Chief Mechanical Engineer's workshops, which should be especially valuable in providing the future running shed fitter with an understanding of the somewhat different conditions obtaining there, as well as giving him a greater insight into locomotive construction than he could ever acquire normally in a running shed.

The general impression of the L.M.S.R. examination and repair organisation one receives on studying Colonel Rudgard's paper is that of an elaborate edifice carefully built up, with a meticulous attention to detail. In normal times, it would be beyond criticism, but one wonders how the wartime shortages of labour and materials have affected it. The obvious reply may, of course, be that, were it not for this careful organisation, the effects of wartime conditions would have been very much more severely felt; and some support is lent to that view by the fact that some of the most successful achievements of Colonel Rudgard's department have occurred during the past four or five years. We may feel, therefore, that we have here an organisation which refuses to be daunted by adversities, and, indeed, rises superior to them. No finer spirit could inspire any department of any railway.

Pullman Operations in the U.S.A.

AN excellent example of the protracted nature of some of the American legal proceedings is provided by the fact that the Pullman Company is still operating its rolling stock, nearly seven years after the original action was begun. It may be recalled that an anti-trust suit was brought by the United States Federal Government against Pullman Incorporated in July, 1940, and judgment was given by the District Court of Philadelphia early in 1944. This directed that Pullman Incorporated must separate its car-building from its car-operating business, and dispose of one or the other. The company decided to continue its manufacturing activities and to discontinue its sleeping-car service. The prolonged negotiations for the sale of this business are still in progress, for, although the three-judge Federal Court approved of the sale of the Pullman Company to a group of American railways, rather than to any of the other bidders (the Standard Steel Spring Company; an investment group represented by Glore, Forgan & Company; and Otis & Company and Robert R. Young, Chairman of the Chesapeake & Ohio), the Department of Justice, which had pressed the anti-trust law proceedings under which the special court's decision was reached, took the position that control of the Pullman Company by a group of railways would amount to a perpetuation of the alleged monopoly in that field of transport. As recorded in our May 24, 1946, issue, the department therefore appealed to the Supreme Court, where the case has been listed for review during the current term.

Pending a decision in this appeal, the lower court has permitted the existing Pullman Company to continue to operate its equipment as in the past. Numbers of individual railways have placed orders for new sleeping cars, and the ownership of other rolling stock of modern design assigned to specific runs is to be acquired by some of the individual railways under the terms of the joint offer accepted by Pullman Inc., leaving the Pullman Company in control of the large pool of older so-called standard cars, upon which it is expected that all railways participating in Pullman ownership will be able to draw to supplement their individually-owned equipment.

Main-Line Railway Electrification

(From a correspondent)

THE Electricity Act, 1926, placed the generation of all high-tension energy under the Central Electricity Board, which was charged with the duty of linking power stations together so as to form a national grid. The Weir Report, 1925, on which the Act was based, pointed out that the advent of the grid would have an important bearing on the question of railway electrification. The capital required would be less, because separate power stations would not be needed, and a large demand for energy for railway traction would reduce the cost of current all round.

The report, therefore, suggested that the Government should take steps to ensure that railway electrification was reviewed, if it adopted the proposals for the grid. This led to the appointment of a Committee in September, 1929, with the following terms of reference:—

"In view of the progress which is being made towards widespread availability of high-tension electrical energy, to examine into the economic and other aspects of the electrification systems in Great Britain, with particular reference to main-line working, and to report its conclusions."

The members of the Committee were Lord Weir of Eastwood (Chairman), Sir Ralph L. Wedgwood, and Sir William McLintock; Colonel A. C. Trench was Secretary. Its report, dated March 24, 1931, stated that the Committee was not asked to make any definite recommendations, but had come to certain unanimous conclusions, which were summarised under 27 heads. It will suffice for our present purpose to give the pith of these findings.

To secure the full economic advantage of electrification, the Committee said, any scheme should comprise all the non-electrified lines, less branches with light traffic. Spread over 15 or 20 years, such a scheme would represent £261 millions of new railway capital, on which there would be a return of about 7 per cent. through working economies. These calculations were on the basis that the Central Electricity Board would provide transmission lines and sub-stations for the supply of energy from the grid at a further expenditure of £80 millions of fresh capital, which would earn the normal rate of return for electricity undertakings. In addition, there was room for expending £45 millions of capital on intensive suburban electrification schemes, which might yield a return of 13 per cent. The Committee observed that the magnitude of these expenditures would be unique in the history of world enterprise, though it thought that fact should be no deterrent to the consideration of complete railway electrification on its economic and social merits.

Little had been heard of this remarkable report until the Lord President of the Council sought to make a political score out of it in his speech on the second reading of the Transport Bill. According to *Hansard*, Mr. Herbert Morrison said that "miles and miles of the railways in this country ought to have been electrified years ago. The Weir Report on railway electrification recommended electrification, and held that it would give a profitable return of 7 per cent. The railways said that 7 per cent. was not enough. It is arguable. It was 7 per cent. gross overall. I think they were wrong, because I think that the cleaner and brighter railways it would have brought, would have paid them. They also said they wanted to know how much, if any, subsidy the State would give to enable them to do it. I pointed out to the railway companies that if they had got to the position in which they would not give a decision on electrification until they knew whether or not the State would subsidise it, they had degenerated into a poor-law frame of mind that would utterly undermine capital and the private enterprise industry in the railways if they went on. But that is where they had got to. It was a confession that they could not adequately do the job.

"In the public ownership scheme which we envisage, capital—and cheap capital—will be available for electrification as soon—and I quite agree it cannot be done at once—as it becomes practicable and expedient."

Could anything be more unreasonable than to expect the railway companies to commit themselves straightaway to a colossal scheme of electrification on the strength of a report whose authors admitted that their estimate of capital cost might prove inadequate, and that it had been impossible for

them to examine in any detail the question of costs of operation during the progress of the work, lasting over a period of 20 years?

The Committee said, frankly, that the risks involved in undertaking a comprehensive programme could not be predicted with accuracy. If the great adventure were a success, the Central Electricity Board and all consumers of electric power stood to benefit. Why should the railways be asked to carry all the risk, especially in a year when trade and industry were wilting and railway receipts were decreasing at an alarming rate? Yet the uncalled for jibes and jeers, of which Mr. Morrison appears to be proud, must have been fired off within four months of the lodging of the Committee's report, as he ceased to be Minister of Transport in August, 1931.

Though the railways refused to be stampeded, they did not remain inactive, but took the prudent course of electrifying lines where experience showed that immediate benefits would be reaped. Progress was gradual, but persistent. When Mr. Morrison left the Ministry of Transport, the route mileage electrified in Great Britain, including the L.P.T.B. railways, was 624, and the track mileage was 1,613. By 1938 these totals advanced to 966 miles and 2,458 miles respectively.

There was a further increase in track miles to 2,679 in 1939 and to 2,697 in 1944. But for the war, the increase would have been considerably larger. What is perhaps more important, every extension is understood to have been a success. On the other hand, the London & North Eastern Railway scrapped the Shildon to Newport, Middlesbrough, freight electrical installation which had ceased to be remunerative because of changes in traffic volume.

It is, indeed, fortunate that the railways proceeded quietly on sound commercial principles, because the situation has been altered radically by the development of diesel-electric traction in recent years. The Weir Report dismissed what it termed oil-electric units as "possible substitutes for steam on lightly-loaded branch lines, and more particularly so in conjunction with a general electrification of main lines." Within three or four years from the date of this dictum, the diesel-electric started a revolution in main-line operating, especially in the United States. One after another of the American railways adopted the new motive power for hauling fast passenger trains and found it thoroughly dependable.

If the diesel-electric had proved its efficiency and flexibility a few years earlier, it is doubtful whether the Pennsylvania would have electrified its lines between New York, Washington, and Harrisburg. At all events, it is certain that the New York, New Haven & Hartford dropped a proposal to extend its New York-New Haven electrified section to Boston and installed a fleet of diesel-electrics beyond New Haven. That decision may mark the end of an epoch. Since it was taken, the efficiency and flexibility of the diesel-electric in main-line freight service have been established by large-scale trials.

During the six years 1940 to 1945, the American railways installed 2,656 electric and diesel locomotives, but only 1,462 new steam engines. At the end of 1945, they had on order over 370 diesel-electrics, but only 90 steam engines. Last year, about 12 per cent. of the U.S.A. passenger train mileage was worked by diesel-electric power. This proportion is increasing rapidly and the prospect is that no more will be heard of main-line electrification across the Atlantic unless new inventions modify materially the stereotyped systems now in force. Mr. Morrison spoke as though the transport world had stagnated for 15 years, with the Weir Report still holding the field.

The situation in Great Britain should be the subject of an exhaustive and unbiased inquiry as soon as the future administration of inland transport affairs is settled. By that time, the able engineers in America and elsewhere who are constantly engaged in studying the development of diesel-electric traction, are sure to have discovered many improvements in the existing machines. An experiment with up-to-date diesel-electrics, designed to suit our railway gauge and to handle our light trains, would cost a mere fraction of the expenditure on electrifying main lines beyond suburban and outer-suburban areas. A trial on a sufficiently large scale to be decisive would not interfere with steam working as electrical operation does because of its rigidity.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Railways and the State

35, Thurloe Street,

South Kensington, S.W.7. January 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—With reference to your review of Mr. Ernest Short's book, "Railways and the State," in the January 17 issue of *The Railway Gazette*: It is true that, as the Transport Bill has passed the second reading, any discussion of what might have been a better grouping arrangement under other circumstances is academic. There is, however, a point which, though not mentioned, might, even at this stage, be propounded. I refer to the method by which the finance of the actual operation of the nationalised transport system is to be accounted for.

Whatever may be the evils attributed to capitalism, including the so-greatly-exercised "Profit Motive," the system did at least produce a method of "disclosing the true state of the company's affairs" which enabled shareholders and others to appraise, reasonably accurately, the condition of the financial health of the undertaking. It may be that the financial criterion is a sordid one, but, until the idealists discover a scale of comparison which will show the relative evaluation of the imponderable general advantages claimed for nationalisation, it is the only one at present known to science.

I, therefore, argue that—at least pending the discovery of this other method—the Government should stick to the old one. This would mean that the national transport administration must maintain a standard accounting system such as is enforced by law on commercial undertakings, which calls for the publication of an annual audited balance sheet of assets and liabilities, a profit and loss account, and a statement of income and expenditure. In no circumstances should the new directors of the transport system of the country (which really means Whitehall) be allowed to get away with the bald description, as now applied to the Post Office and broadcasting, of "self-balancing" budgets: Income nil, Expenditure nil, Balance nil.

This angle of view may, as I have said, be sordid, but, remembering that the amount of public money involved is the equivalent of the American loan, the public, who is, willy-nilly, a subscriber to it, is entitled to at least the same safeguards.

I am, Sir,
Yours faithfully,
RICHARD THOMAS

Fifty Years of Rail Transport

January 16

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Re training of railwaymen and letters under the above heading in your issue of January 10: Is it not apparent that there is no "merit" in the railway world; the word "merit" simply being another name for favouritism or nepotism, not to mention sycophancy? Also, that the over-riding of seniority provides a channel for petty malice by those in authority? Clerks who talk of merit do so because they consider they should go in front of somebody else.

Yours faithfully,
CLERK

London, N.W. January 21

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Is there not some confused thinking in Mr. H. Hill's letter of January 9, published in your January 17 issue? Railway operating is not a semi-skilled job, as he says, but needs a high degree of specialised skill and power of initiative in those who hold the top posts. The traffic apprentices scheme gives a preparatory training to the young men who have shown promise of developing during their early years as "rankers." My experience was that apprentices had to work harder than their fellows who remained in the ranks. At the end of the training course, an apprentice earned promotion on merit.

Those who went to the Operating Department were to be found acting as assistant yardmasters, stationmasters, or dock agents; others might be engaged on train working or some similar branch of work in a district office. By the time a former apprentice was ready to become a candidate for an assistant district superintendent's post, he had been tested in two or three positions of increasing responsibility. I agree with Mr. Hill that he was not given to spending his time

pulling signal levers, or driving engines, or interfering with permanent way repairs, which were the business of the engineer.

His training was, however, at every stage, more practical than the experience gained by most operating clerks, who might be confined for years to one section of work and might never get out of doors among the traffic.

Mr. Hill need not be alarmed. Traffic apprentices deserve all the promotion that comes their way, and their presence removes any risk of "the railways being top-heavy with inexperience."

Yours faithfully,
A VETERAN APPRENTICE

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I shall be interested to see what the London & North Eastern has to say about Mr. H. Hill's statement in your January 17 issue that positions of Assistant District Superintendent and upwards are reserved for traffic apprentices or university graduates. Many railwaymen in Hull were delighted when Mr. H. G. Sayers was appointed Superintendent, Scottish Area, about a year ago. They remembered him starting as a junior at Hull Goods Station, and had watched him make his way up the ladder by dint of steady work and readiness to take on difficult jobs. Mr. Sayers "learnt his railways the hard way" and no mistake.

Yours faithfully,
GREEN GINGER

York. January 20

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—In a letter which you published on January 17, Mr. H. Hill speaks about getting "back to the days of disciplined, experienced, contented, and ambitious staff." He does not say when and where that golden age existed. The old N.E.R. adopted a system of advertising staff vacancies throughout the line, and also offered traffic apprenticeships for competition amongst the ordinary staff. After amalgamation, these arrangements were extended to the whole L.N.E.R. system, and we North Easterners often heard from people in the other areas that they were pleased with the new chances of promotion opened to them. They were far from satisfied with the practices of their old companies.

Yours faithfully,
YORKIST

Naming a Cross-Country Train

University College,

Southampton, January 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Perhaps the readers of your feature, "The Scrap Heap," may be amused by a few suggestions concerning a name for the Newcastle-Bournemouth train service. It must be added, however, that the rather too obvious name, "Nit Wit," has been omitted.

Yours faithfully,
D. B. MCNEILL, PH.D., A.INST.P.
K. R. WEBB, PH.D., A.R.I.C.

[The suggestions to which our correspondents refer are reproduced in our "Scrap Heap" page this week.—ED., R.G.]

BRITISH EXPORT TRADE RESEARCH.—Next month, the British Export Trade Research Organisation completes its first full year of active work, and in reporting on its activities, the Chairman of the Council, Mr. Leslie Gamage, who is also President of the Institute of Export, stated that during the period under review, no fewer than 600 overseas inquiries and research commissions were handled by the B.E.T.R.O. staff. At all times, moreover, close liaison was maintained with the Export Promotion Department of the Board of Trade, and, although a large number of the inquiries dealt with originated from firms in the engineering and allied industries, information was sought and given also on the sales possibilities of a very wide range of products covering almost every country in the world, involving a high degree of accurate research and analytical interpretation of statistics. The countries concerning whose possibilities manufacturers seemed more immediately interested, in the early part of 1946, were Norway, Sweden, and Denmark in Europe; and Egypt and Turkey in the Middle East; while Argentina and South America generally were the countries on which British manufacturers would seem to be concentrating their longer-term plans.

The Scrap Heap

AWAY WITH IT!

Off goes that survival of wartime—priorities for V.I.P.s. But only from nine routes of British European Airways. This time-wasting practice should be abandoned altogether.

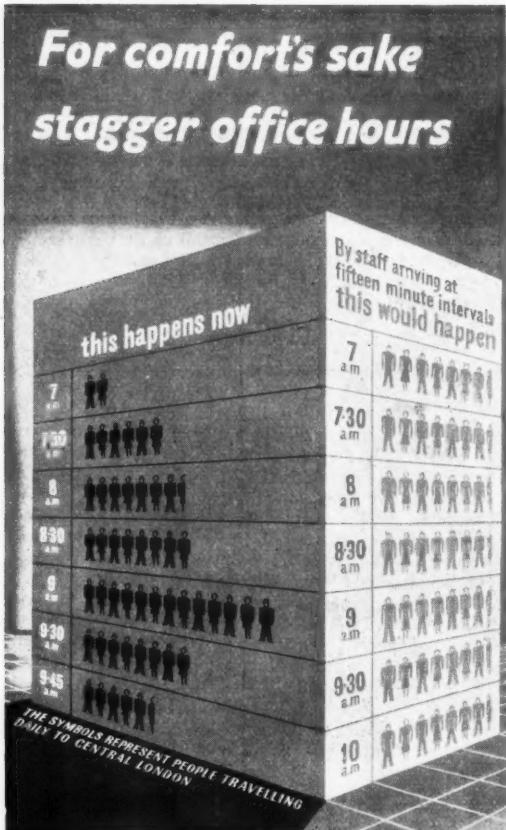
Worst offender is Mr. Barnes, Minister of Transport. He still reserves one in five of railway sleeping berths for his nominees.

Generally, these are Civil Servants. But in these days of urgent production, surely business men are far more important. Now, then, Mr. Barnes, away with this anachronism.—From "The Evening Standard."

THE FLYING PHILOSOPHER

Until the resumption of the through Aberdeen-Penzance service, the Newcastle-Bournemouth restaurant car train stops at more university centres than any other train in the United Kingdom, the towns visited being Newcastle, Durham, Sheffield, Nottingham, Leicester, Oxford, Reading, and Southampton. The train at present wends its leisurely, academic way completely *incognito*, but when names are given to cross-country trains, why should it not be called the "Ambling Academician." If its punctuality improves, the name might then be upgraded to "Dons Delight." Finally, in the remote future, when its schedule is reduced and its time-keeping above reproach, it will surely have earned the name "The Flying Philosopher."

London Transport "Staggered Hours" Poster



A pictorial demonstration of how an adjustment in business hours would equalise loading during the rush period

100 YEARS AGO

From THE RAILWAY TIMES, January 23, 1847

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* * *

SOOTHSAVING AND NECROMANCY

The new legislation is taking all *sense* out of the economic order. The new Electricity Authority is to maintain and develop an "efficient," co-ordinated and economical system of electricity in conditions in which all the tests of efficiency, co-ordination and economy have been abolished. In the same way the new Transport Commission will provide, secure or promote the provision of an "efficient, adequate, economical and properly integrated" system of public inland transport and port facilities. The millions of separate decisions, actions and checks that secure efficiency, adequacy and economy in a free system are in future to be filtered through a few master brains which will fit them not only into immediate requirements, but into a scheme of balancing the whole economy over long decades ahead. If it appears to the Minister to be expedient . . . If the Board are satisfied. . . .

If in the opinion of the Commissioners . . . If the planning authority shall deem . . . If the Tribunal considers it desirable . . . It is this soothsaying and necromancy that passes for statesmanship in the economic field today.—G. L. Schwartz in "The Sunday Times."

Red Sky at Morning

When Socialism took over Britain we were promised a new millennium.

Destroy the wicked capitalist, put out the private enterpriser who upholds the shocking theory that a man should prosper in relation to the effort he puts into his job, adjust your economy so that laziness can be even more profitable than energy, and automatically comfort, happiness and prosperity will come to all. That was the promise. But life is not working out that way.

Instead of entering a new millennium we look more like falling into a very deep pit. Instead of having more leisure granted as a right, with plenty of money to enjoy it, a high proportion of the workers of this country are more likely to have leisure forced upon them, without any financial cushion to make it palatable.

For the plain, unescapable fact is that we are racing headlong into an industrial and financial crisis from which the only escape is a rapid scrapping of theories on which the millennium was to be built.

We ended the war with most of our foreign trade and money gone. Our only hope of swift recovery was the rapid expansion of our foreign trade. Only by that could we secure the currency we need, the raw materials upon which our industries live, and the food on which we live. The one solid rock upon which all could be built was hard work.

Unfortunately, for years, the gospel preached to the working man of this country has been that work was a thing to be avoided as much as possible. A vote for Socialism, he was told, means a shorter week, a shorter day, and higher pay with less return in exertion.

He has swallowed that fallacious nonsense hook, line and sinker. Wages are rising with staggering swiftness. Hours of work are being reduced, and the pressure is continued for further reductions. The output per man-hour has sunk in many cases to 50 per cent. of what it ought to be. Now the pressure is for a nationwide five-day week.

To-morrow brings the beginning of another phase which will give us a hard and bitter lesson on our economic folly. Because the miners will not produce the coal we need, because absenteeism—a direct consequence of the false gospel that has been preached to the men by their leaders for so long—is apparently incurable, there will be a cut, amounting in some cases to as much as 70 per cent., in the coal allocation for a wide range of industries.

What does that mean? It means a wide increase in unemployment. It means fewer motorcars, less beer, less clothing, less work in the laundries, less soap at home, fewer sweets and the practical elimination of every little easement of austerity.

Worse still, it means a drop in our exports, which in turn means less foreign currency, with the consequence that we shall be unable to buy many raw materials we need urgently, and must face new food difficulties.

The leaders of the working men have raised for themselves a desperate problem. Will they be wise and bold enough to see their mistake, even at this late hour, and to preach a new gospel of regeneration and recovery through greater effort?

And, even more important, have they still the power to convince and to lead?

We are about to learn that work is the only thing for which there is no substitute.—From "The Sunday Express," January 19.

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OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW ZEALAND

Concrete Sleepers on Main Lines

An experiment has been made with the use of pre-stressed reinforced concrete sleepers on a short section of the Wellington-Palmerston main line near Levin. These are being compared under heavy traffic conditions with a similar number of Australian hardwood sleepers laid at the same time.

Rail-Air Parcels Service

By arrangement between the Railways Department and the Air Department, a combined rail and air parcels service has been in operation for some time between North and South Islands. Parcels are accepted, at special rates, for transport between any station in North Island and any station in South Island by rail or departmental road service in each island, and by air between either Wellington or Auckland and Christchurch. As an example of the speed of the service, packages accepted at Auckland up to 10 a.m. are available at Christchurch Station at 4 p.m. the same day.

Christchurch District Widening

A fourth running line is now in service between Christchurch and Addington Junction (2 miles), where the northern East Coast line from Picton joins the West Coast line and the southern main line from Dunedin and Invercargill. The completion of rail communication from Christchurch to Picton, by linking the former railheads at Kaikoura and Oaro, was recorded in *The Railway Gazette* of April 12, 1946.

CANADA

New Diesel-Electric Shunters

Ten new diesel-electric shunting locomotives built by the General Motors Corporation for the Canadian National Railways were delivered in November last year. This brought the C.N.R. stock of diesel-electric shunters up to 50. Six engines of similar power were received recently from the American Locomotive Company for use on the Grand Trunk Western lines. The General Motors diesels are powered by a 12-cylinder, two-cycle, 1,000-h.p. diesel engine, driving a main generator which supplies current to four traction motors, each operating a pair of 40-in. driving wheels. The locomotives weigh 125 tons, and are equipped with improved air brakes, a motor cooling system, a new relay device to reduce wheel-slip, and a cab heating system for winter operation. Their maximum speed is 60 m.p.h.

Railway Rating Principles

The position of Canadian railways at the present justified a general increase in freight rates, said Mr. D. C. Coleman, Chairman and President of the Canadian Pacific Railway, at a recent meeting in St. John, New Brunswick. Immediately it had been granted, the Board of Transport Commissioners, or some other body, should undertake an examination of all the claims of territorial discrimination, so that such claims could be corrected or removed. Mr. Coleman recalled the amazing record of the railways during the war, and said it would be a poor return to leave them to starve

by denying them the right to increase their charges sufficiently to meet the great increase in the cost of labour and materials.

British tribunals, in dealing with railway rates, laid down two principles which should always be borne in mind. One was that rates should be based on what the traffic could afford to bear. He refuted what he termed propaganda, particularly in the West, where it had been asserted that the railways interpreted that principle as meaning "all the traffic would bear." On the contrary, it meant, he pointed out, that certain products of industry were of such a nature and value that, without injury to that industry, they could carry a rate disproportionate to the rate which another product could afford to bear.

The other principle in British rate-making was that any producing or trading centre was entitled to the advantages of its geographical location, and its proximity to markets, but that railway rates could not fairly be adjusted to relieve such a centre of its geographical disadvantages.

An application by the Canadian railways for a 30 per cent. increase in freight rates was recorded in *The Railway Gazette* of October 25, 1946, and opposition by the Alberta Government to the application was the subject of a report in the December 6, 1946, issue.

UNITED STATES

Burlington Completes C.T.C. Installation

With the installation of centralised traffic control on the 137 miles of single track between McCook, Nebraska, and Akron, Colorado, on September 27, 1946, the Chicago, Burlington & Quincy has completed the equipment of 483 consecutive miles of single track with this apparatus between Lincoln, Nebraska, and Denver, Colorado; there are also two short single-track sections of the Burlington route between Lincoln and Chicago, and these also are equipped with C.T.C. The first Burlington C.T.C. installation was made on the 112 miles of single track between Akron and Denver in 1937.

Luggage Transfer at Chicago

The Erie Railroad has instituted a new service for the transfer across Chicago of the hand luggage of passengers proceeding to places on other railways. Porters on the Erie trains take charge of the luggage before arrival at Dearborn Street, and issue receipts for it. The luggage is then transferred to the parcels office of the station from which the passenger is continuing his journey, where he claims it, without charge, on presentation of the receipt. This service is available both to Pullman and coach passengers, and is claimed to be more flexible and offer greater advantages to more passengers than the coast-to-coast Pullman facilities.

Increased Use of Diesel Power

Figures published by the Bureau of Transport Economics & Statistics of the I.C.C. show a sharp increase in the use of diesel power since 1940. In that year diesel locomotives were handling 0.1 per cent. of the goods ton-mileage, 6.7 per cent. of passenger train-mileage, and 10.2 per cent. of the shunting hours. During the first eight months of 1946, however, the proportion of the total traffic worked by diesel power had increased to 12.1 per cent. of the goods movement, 20.4 per cent. of the

passenger movement, and 32.9 per cent. of the shunting hours. From January to August, 1946, it is estimated that the use of diesel-electric locomotives effected a saving of 14,136,625 tons of coal, as compared with 1,750,039 tons in the corresponding period of 1940. If coal-burning locomotives had performed the same work as the diesels in the first eight months of 1946, the railways would have consumed 21 per cent. more coal as locomotive fuel than actually was used. Coal consumption for the first eight months of last year shows an increase of 26.8 per cent. over that in the corresponding period of 1940, but in the same months the amount of diesel fuel used increased 786.2 per cent. The average unit cost of coal, however, rose by 52.2 per cent. between 1940 and 1946, whereas the average unit cost of diesel fuel increased by only 14.1 per cent. in the same period.

EGYPT

Rebuilding Port Said Station

A scheme was prepared many years ago for rebuilding Port Said Station and constructing a new marshalling yard and engine shed on a site west of the present station. This scheme entailed an expenditure of about £300,000. As the existing station building at Port Said is very old, and as a first stage in the remodelling, it has been decided to rebuild the station building on the new site, west of the existing station. The cost is estimated at about £80,000, of which a sum of £10,000 has been provided for in the present financial year.

Railways for Northern Nile Delta

Mutubis lies on the East Bank of the Nile, opposite Edfina, near the Rosetta mouth of the river, and for some time a scheme has existed for connecting Mutubis with Sidi Ghazi, thus opening up the Northern Delta, which at present is lacking in rail communications. It has been decided recently to lay the line from Mutubis to Belkas, instead of Sidi Ghazi, to serve a larger area. The Nile bridge at Edfina, and a goods station at Mutubis, were constructed some years ago, when the scheme was begun, but all new works, except those of military importance, were withheld during the war years. The project is estimated to cost about £800,000, of which a sum of £50,000 has been included in the present financial year.

LEBANON

Purchase of Nakura-Tripoli Line

The Lebanon Minister of Foreign Affairs recently signed an agreement with the British military authorities for the purchase of the Ras el Nakura to Tripoli section of the Haifa-Tripoli standard gauge line, which was built during the war. The construction of this railway was described in *The Railway Gazette* of January 1, 1943. The Nakura-Tripoli section has been bought for 5 million Lebanese jira (about £550,000), payable in seven annual instalments.

SOUTH AFRICA

Development of Tourist Industry

The formation of an interim tourist organisation, controlled by a Tourist Development Board, was announced by the Minister of Transport, Mr. F. C. Sturrock, when he opened the South African Publicity Conference at Bloemfontein recently. Mr. Sturrock said that the Government regarded tourism as a future major in-

dustry, and that it was in favour of careful and comprehensive preparations being made to attract visitors to South Africa, and to ensure for them accommodation and treatment of the highest quality. The interim organisation would serve as a model for that eventually to be established under the amended Tourist Development Act. As the Government was to assume sole financial responsibility for the Tourist Development Corporation, Mr. Sturrock said he thought it equitable that the Government should have equal representation with outside interests on the interim board.

Plans for New Durban Station

Plans for the reorganisation of the railway system in Durban (outlined in *The Railway Gazette* of October 4, 1946) include the building of a new station, which eventually will have 22 platforms, and will occupy a much larger site than the existing terminal. The main features of the design provide for a lofty and spacious concourse, with booking offices and entrances sited so as to reduce congestion to a minimum at peak hours. A large car parking area will be provided, with easy access to the luggage offices, from which subways will communicate with the platforms. Subways also will link the General Post Office with the station to facilitate the despatch and reception of mails.

There will be a large dining room upstairs, with balconies, lounges, and a cocktail bar. Native and Indian travellers will have separate waiting and dining rooms.

The administrative block of four floors will form part of the station premises, and in addition to the usual office accommodation will include a gymnasium, cafeteria, and rest rooms for the staff. Parking space for staff cars will be provided in the basement. With the removal of the workshops to their new site at the head

of Durban Bay, the station will be free from smoke and grime, and its appearance will be improved by ornamental gardens between the pavements and the station buildings, which will be set back 50 to 70 ft.

INDIA

More Seat Reservations

A large increase in the number of reservations, and the provision of more reserved accommodation in trains leaving Lahore, are the main points in a report issued by the N.W.R. Headquarters Reservation Office. The average number of berths reserved daily during the period April-September, 1946, was 210, a 27 per cent. increase over the corresponding period in 1945. The figure does not include reservations for military personnel and pass-holders.

Before April, 1946, reservations for upper class passengers were carried out at Lahore Station, and the moving of the reservation office to Railway Headquarters has made for greater efficiency. A Reservation Supervisor and four assistants are at all times available to help passengers. The new system has enabled the N.W.R. authorities to cope with heavy traffic on special occasions, such as the Haj pilgrimage and political meetings of Congress and the League; and has helped to relieve certain of the hardships endured by the travelling public during the war years.

FRANCE

New S.N.C.F. Regional Administration

In accordance with the policy of decentralisation described in *The Railway Gazette* of April 26, 1946, the S.N.C.F. established on January 1 an additional regional area, based on Marseilles. This region incorporates the railway centres of Beziers, Nimes, and Valence (formerly the South-Eastern Region), and Marseilles

(formerly the South-Western Region). It includes three branches: general service, movement, and planning.

Railway Plans for 1948-49

In 1948, the railways will provide for passenger traffic equivalent to that of 1929, but with 22,500 coaches against 35,000 in the former year, according to a plan just issued by the Commissariat General. Goods traffic in 1949 is estimated at 10 per cent. below that of 1929, at 200 million tons. To deal with this traffic, the S.N.C.F. will have available 415,000 wagons, against 520,000 in 1929. Additional rolling stock necessary comprises: 130 electric locomotives, 1,500 passenger coaches, 1,250 road-rail trailers, and 35,180 wagons, all of which are to be built in France before the end of 1948. Rolling stock imports for the same period comprise: 1,340 locomotives, 100 diesel locomotives, and 85,250 wagons. The rolling stock to be imported is already on order, except 40,000 wagons still to be ordered, if the project is approved. French purchases of ferrous metals for the S.N.C.F. total 1,350,000 tons a year.

AUSTRIA

Passenger Steam Trains Withdrawn

Further deterioration in the coal supply position has led to the drastic step of withdrawing all steam-hauled passenger trains as from the night of January 14-15. The international "Arlberg Express" service is included in the cuts, although in the earlier reductions of service, recorded in *The Railway Gazette* of November 22, 1946, this train was suspended only for a few days. It is probable, also, that electric services will have to be curtailed on account of the depleted coal stocks at generating stations, and shortage of water for the hydro-electric plants in consequence of the dry winter.

Publications Received

Transport Administration in Tropical Dependencies. By George V. O. Bulkeley, C.B.E., M.I.Mech.E., with chapters on finance, accounting, and statistical methods in collaboration with Ernest J. Smith, F.I.C.S., formerly Chief Accountant, Nigerian Government Railway. London, 1947. *The Railway Gazette*, 33, Tothill Street, S.W.1. 9 in. x 6 in. 190 pp. 20s.—It is not the intention of the authors to provide a text book on railway operation in tropical dependencies, but to present their own conclusions based on a wide collective experience in this field. Mr. Bulkeley has been successively Port Manager, General Manager of Railways, Director of Transport, and Member of Executive Council in the British Colonial Service; and Mr. Smith was formerly Chief Accountant of the Nigerian Government Railway. In considering "The Transport Characteristic" in the first section of the book, the function of railways as an element in the transport system as a whole is defined, and full account is taken of local addiction to less advanced methods of movement, including even bicycles operating in conjunction with canoes. At the same time, railway transport has to be encouraged on account of the economic advantages it offers to undeveloped territories, and the offering of attractive facilities to traders and passengers is discussed in the light of personal experience, thus providing a wide survey of current practice and suggested improvements.

Administrative, financial and statistical methods are discussed in later chapters, and a suggested administrative system is outlined, designed to avoid some "unsatisfactory and cumbersome features" of prevailing methods, which involve "perpetual correspondence between the secretariat and the heads of transport departments." A series of appendices proposes methods for analysing results, reporting progress, and calculating the dimensional requirements of locomotives and motor vehicles for given conditions of service.

Railway Quiz. Department of Railways, New South Wales. Sydney: 19, York Street. 6 in. x 4½ in. 56 pp. No price stated.—Whether his interests are technical, historical or statistical, the reader of this book will find lucid answers to most of the questions he is likely to ask regarding railway operation in New South Wales, with explanatory maps, photographic illustrations, and diagrams when necessary. The book is divided into sections dealing with history, track, traffic, locomotives and rolling stock, finance, signalling, electrification, and miscellaneous topics. There are two whole pages of illustrations showing locomotives and rolling stock of earlier days.

As an example of the varied interests catered for, the questions range from such matters as "What is a ton-mile?" to that familiar poser of the railway querist, "What are the longest platforms in New South Wales?" Even more exacting inquirers are forestalled by ask-

ing, "What is the size of the clock in Sydney Station tower?" and providing the answer that the diameter of the face is 15 ft. 6 in., and the hour markings are 2 ft. 6 in. long.

Weldless Steel Tubes.—We have received from Howell & Co. Ltd., Winco-bank, Sheffield, a copy of the firm's latest catalogue. It opens historically with an account of the endeavours of Joseph Robert Howell in the 1850s to popularise the use of mild steel for general constructional purposes under the title of "Howell's Homogeneous Metal." In the 'seventies the firm began to produce weldless-steel locomotive boiler tubes, now ubiquitous. There is an interesting description of the processes by which weldless-steel tubes are made, followed by particulars of the various types of tubes marketed by the firm. The catalogue is attractively produced and lavishly illustrated.

Hydraulic Brakes for Motor Vehicles

—The Automotive Products Co. Ltd., Tachbrook Road, Leamington Spa, has issued a useful illustrated servicing manual dealing with the upkeep of Lockheed hydraulic brakes for cars and light commercial vehicles. The operation of the brakes is explained with the aid of a diagram, and full instructions are given for dismantling and assembling. The method of adjusting the brakes is illustrated with diagrams and by close-up views of the various procedures involved.

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Locomotive Availability

An account of the organisation of the work at locomotive running sheds on the L.M.S.R. by Lt.-Colonel H. Rudgard, M.I.Mech.E., M.I.Loco.E.*

LOCOMOTIVES are used about 15 hr. out of 24 on revenue-earning work. It is found difficult to reduce the percentage of the engine stock that is out of service for examination and repair below 4 per cent., and the proportion of those awaiting material below about 1½ per cent., of the operating stock. A description of the methods used on the L.M.S.R. illustrates the vital relationship that exists between good organisation and the availability of locomotives for traffic operation.

In 1935, an organisation was established on the L.M.S.R., known as the motive power area locomotive supply repair concentration and garage section, which necessitated dividing the line into a number of areas, each of which is supervised by a District Locomotive Superintendent, usually located at the most important shed in the area, known as the concentration depot, with a number of garage depots in his area.

The work is scheduled at the concentration depot in such a way as to ensure locomotives in the district being called in from the garage depots in their due turn for examination and repair, thus enabling repairs of locomotives at running sheds to be programmed on a system approximating to shop practice.

Four Main Headings

The four main headings under which running shed work can be grouped are: (1) Cooling-down and washing-out of boilers; (2) "X" scheme examination; standard mileage and periodical examinations; (3) servicing of locomotives; (4) casualty system.

Cold-water washing-out is standard on the L.M.S.R.; and a system of cooling the boiler gradually is used, so washing-out is not begun till the cooling-down water leaving the boiler is about the same temperature as the water from the hydrant. Cold water entering the boiler should be so regulated that the least amount enters when the boiler is hot; as the boiler cools, so can the quantity of cold water be increased. The overall times allowed are: blowing steam down, 4 hr.; cooling, 5 hr.; filling boiler and steam raising, 8 hr. About 2 hr. must be added to these figures for the actual work of washing-out.

The stopping of a locomotive for washing-out is important, because all examination and repairs to locomotives and boilers which can be completed without stopping the locomotive for more than 24 hr., must be carried out while it is stopped for washing-out. Washing-out is done on a periodical basis: engines with boiler pressure of 200 lb. per sq. in. or over are washed out every 12-16 working days, and those with less than that pressure, every 24-32 working days.

"X" Scheme and Periodical Examination

At specified periods the engine and boiler are given a thorough and detailed examination and repair, known as the "X" repair, executed so efficiently that the locomotive will run till the next "X" repair day without the necessity for more than the absolute minimum of repairs to be carried out intermediately. The scheme aims at a high standard of mechanical con-

dition, with reduced liability to failure, and also increases the availability of the locomotive for useful work, whilst eliminating repetition repairs. The maximum intervals at which the "X" examination is carried out are given below (but when an engine is washed out, an "X" examination is always done):—

	Days
Express passenger engines ...	6-8
All other passenger engines ...	12-16
All freight tender engines ...	12-16
Freight tank engines used on passenger or freight trains ...	12-16
All other freight tank engines used for freight shunting work ...	24-32

Co-operation between the repairing-engines foreman and the working-engines foreman should result in arranging the washout day for the various classes of locomotives so that the same number is dealt with daily. Special pits are allocated to "X" repairs, and the heavy material such as brake-blocks, springs, firebars, and firebricks are stored conveniently near, to avoid waste of time in transport. As soon as a locomotive arrives on the shed roads, a thorough examination of all joints is made for steam leakage, and the examiner reports all defects found. When steam has been blown off, an examining fitter carries out a detailed examination, booking all defects found. Bolts and nuts are properly washed up, so that the cotter or split pin is bearing against the nut. The bad practice of simply tightening nuts and thereby leaving the pin or cotter clear is prohibited.

Careful consideration of defects reported by drivers, and of known failures of various parts of the locomotive in traffic, and a comparison of this information with the period or mileage run by the locomotive since previous reports of failure, have revealed a definite relationship between the two. It is thus possible to lay down periods and mileages at which various parts should be examined and repaired. Development is taking place continuously.

Originally, the big- and little-end examinations were carried out at 5,000-6,000 miles, and the valve and piston examinations at 20,000-24,000 miles. By improved design, improved methods of white-metalling, and greater attention to the actual fitting, it has been found possible, in certain cases, to extend these mileages to 10,000-12,000 in the case of big-ends, and to 30,000-36,000 in the case of valves and pistons.

Examinations are grouped under two headings:—

- (a) "Static" parts, e.g., boiler injectors, gauge frames and glasses, vacuum and steam brake apparatus, safety valves, etc., which are examined on a periodic basis (12-15 days or multiples thereof).
- (b) "Moving" parts, e.g., valves, pistons, big- and little-ends, wheels and tyres, and lubricators, which are examined on a mileage basis (5,000-6,000 miles or multiples thereof).

When a locomotive is stopped for valve and piston examination, the whole of the periodical examinations are carried out, and a thorough inspection is made of the firebox and boiler. The motion can then be reconditioned and the side-rod and joint-pin brushes changed. To ensure that the mileage examination is not overlooked, a mileage advice slip is handed to the repairing-engines foreman when the engine has run 4,000 miles since the last mileage examination. The chief clerk is responsible for seeing that this is done.

To keep a check on coal consumption, two 4,000-gal. tenders have been equipped with coal-weighing mechanism provided by the Transport and Equipment Co. (Leeds)

Ltd. The entire coal bunker can be weighed at any time, and is steadied by chocks at all other times than when weighing is actually taking place. The tenders can be changed from one engine to another, so that locomotives of the same or different classes can be compared under various conditions.

Servicing of Locomotives

Experience during the war with the U.S.A. "austerity" 2-8-0 locomotive showed the advantages to be gained by fitting self-cleaning smokeboxes, rocker grates, and self-emptying ashpans. Particular attention is given to ensure that the firebox, brick arch, superheater flue tubes, and superheater element return bends are thoroughly clean. Tubes are cleaned daily by steam jet on all engines working passenger or vacuum-fitted freight trains, and twice weekly on freight engines. But engines with self-cleaning smokeboxes have tubes swept only at "X" examination.

With efficient servicing, casualties due to defective brick arches should cease, as the arch is properly examined on "X" examination day, and if there is any possibility that a defect will develop before next "X" day, the arch is renewed.

Casualty System

Casualties* are grouped into three categories: (1) a failure resulting in a locomotive being unable to work its train, to which category are added all fusible-plug casualties; (2) hot axle bearings, and hot little- or big-ends; (3) casualties not due to engine defects, but arising from misarrangement, shortage of water, overloading, weather conditions, slipping, shortage of coal, or priming.

To the Superintendent of Motive Power, the number of casualties provides an indication of the measure of success achieved in carrying out the principles laid down for washing-out, examination, repair, and servicing of locomotives. The real usefulness of the system lies in getting at the cause of a casualty so that steps may be taken, either by modification of design, or by improvement in the running-shed organisation, to prevent recurrence. An average of 32 suggestions each year is sent by the author to the Chief Mechanical Engineer, recommending modifications in design, and the majority of these suggestions have followed investigations, in districts, divisional, and H.Q. offices, into individual casualty reports.

Stimulating Interest

To achieve success in eliminating engine failures, the interest of the whole motive power staff must be stimulated, so that a personal pride is felt in the avoidance of casualties. With this object, a competition known as the "Casualty League" is in operation. The competition is based on miles run per engine casualty, i.e., mechanical failures, irrespective of whether time is lost or not, and points are awarded to each motive power district for each four-weekly period, on a figure of miles per casualty based on the average for 1945.

The "datum" figure referred to represents 100 points, and each district is awarded points every four weeks, to show improvement or otherwise in the datum. The motive power districts occupying the ten top positions in the league at the end of the year's competition will be awarded shields for exhibition, which they will hold

(Continued on page 110)

* Abstract of a paper entitled "Organisation and Carrying-out of Examinations and Repairs of Locomotives at Running Sheds in Relationship to Locomotive Performance and Availability," read before the Institution of Locomotive Engineers in London on January 15.

* A full account of the L.M.S.R. casualty system was published in our April 21, April 28, and May 5, 1944, issues.

Railway Civil Engineering as a Career*

Mr. V. A. M. Robertson's presidential address to the Permanent Way Institution

SHALL we at the outset try to find out why we joined a Civil Engineering Department of a railway company? Was it because we wanted to be associated with civil engineering and because we were interested in railways; was it because the railway service was traditional in our family; was it because as a young man we knew someone who knew someone else on the railway who had an opening for a young man in his office; or was it because we were fond of drawing and were thrilled at the idea that one day we might be able to design and construct a bridge to carry great engines drawing express trains to the coast?

Having decided to join the railway service, a young man has a large field of employment from which to select a career. If he is technically inclined, he can seek employment in civil, mechanical, electrical, marine, or road transport engineering, or if he is clerical, he can seek employment in any department. He can become a sailor, policeman, lawyer, artist, foreign representative, chef, waiter, receptionist, tradesman, artisan, platerlayer, or labourer. These careers are open to everyone, and some of them to women.

Possibilities of Employment

I want today, however, to deal with railway civil engineering as a career, and so let us look at the possibilities of employment and promotion in the various civil engineering sections of a British railway. First, what are these sections, and what is the standard necessary to obtain employment in them? The sections and the grades of employment in a railway Civil Engineering Department can be conveniently grouped under the following main headings:—

Permanent Way : Labourers and platerlayers

Buildings and Structures : Labourers, mates, bricklayers, carpenters, glaziers, plumbers, fitters, riveters and platers, tinsmiths, locksmiths, painters, and electricians

Signals, Telegraphs, Telecommunications, and Wireless : Labourers, mates, linemen, fitters, and electricians

Lifts, Cranes, Lighting, Heating, Water Supply : Labourers, mates, plumbers, fitters, and electricians

Clerical Staff : Office boys, messengers, typists and stenographers, accounting, secretarial staff, and statistical staff.

Technical Staff : Tracers, draughtsmen, surveyors, engineering assistants, quantity surveyors, resident engineers, mining engineers, head office section engineers, divisional or district engineers, signal and telegraph engineers, architects, new works engineers, maintenance engineers, assistant chief engineers, and chief civil engineers

I am frequently asked what standard of education boys and young men should aim at before leaving school or college, so that when they do enter the railway service they are not at any disadvantage with their colleagues. My reply, normally, is that boys should leave school with the matriculation examination or its equivalent, and for young men who have been to the university or a technical college, and who are, therefore, normally about 21 years of age when they enter the railway service, to possess, if possible, a degree which exempts them from Parts I and II of the associate membership examination of the Institution of Civil Engineers.

I cannot too strongly stress on young men that they must, in their teens, get these examinations behind them, for their own sakes as well as for the business they

enter. So many young fellows with a civil engineering career in front of them think that when they leave school with a matriculation or equivalent examination completed, they can for a time rest on their laurels, and then, after a few years, start again working for an engineering degree. The few years thus lost are difficult to regain, for their brains are less receptive, they are older, and, perhaps, married, and they will find it very difficult to settle down to hard work in the evenings.

Permanent Way Department

Let us put our first young man in the Permanent Way Department in the London area, and follow his possible progress. He enters the service at age 20, shall we say, having been on a farm near his home village since leaving school. He is a well set up and a bright and intelligent type of man, and the Permanent Way Inspector who runs the rule over him when he applied for the job liked the look of him, and the Medical Officer found him extraordinarily fit. So, with health and enterprise before him, he starts.

He has to live in lodgings, perhaps, and these must be near his work, as he is subject to call for fogging and emergency duties, etc. Well, he puts in seven or eight years, perhaps, as a lengthman, and gains experience in the duties of a platerlayer on maintenance, on fogging duties, on relaying work at week-ends, on renewing bridge timbers, and, possibly, on laying by the pre-assembled track method.

He gets to know about the Permanent Way Institution and joins it. He is keen to get on, and so attends the meetings, takes part in discussions on papers, attends classes, and generally becomes known to his Divisional Inspector as an intelligent and hard-working man.

His chance comes, after a few years, to obtain promotion to sub-ganger, and then to ganger, and in this position he comes under the personal notice of the Divisional Engineer. In due course, say after from 12 to 18 years, when he is about 38, he is selected as a Trainee Permanent Way Sub-Inspector, then District Permanent Way Inspector, and, finally, he becomes the obvious choice for Chief Permanent Way Inspector, and, finally, he becomes the obvious choice for Chief Permanent Way Inspector on a Division at about the age of 50 or a little less. This position is an important one, and carries with it quite a good salary. Therefore, in about 30 years of service our young railway recruit who joined the Permanent Way Department as an untrained platerlayer at the age 20, becomes Chief Permanent Way Inspector on a Division.

You may say that 30 years is a long time to wait for this promotion. On the other hand, some may think I have painted too rosy a picture, and that our first young man has been very fortunate. What I have said, however, is not an untrue picture of what has been happening for many years, and I quote it as an example of the chances ahead of a young man who joins the railway with the intention of succeeding by hard work and assiduous application to his various duties.

I have heard it said that few men get the opportunities which I have just outlined, despite hard work and faithful service, and to this I must agree in part, inasmuch as the number of senior posts is small compared with the total staff employed in the Permanent Way Department.

but I do say that a man with the qualities, experience, and physique of our young friend would be bound to come under the notice of his seniors, and, therefore, be under consideration for promotion.

It must not be overlooked, also, that the Permanent Way Institution and the railway companies are frequently asked to nominate suitable men for positions in the Colonies, and many a young inspector or ganger has succeeded in obtaining such a post.

I frequently receive letters from my old gangers who have gone to Egypt, India, South Africa, Burma, or the Malay States, telling me of their interesting life and the conditions under which they work and live, not to mention the excellent pay and allowances they receive.

Now, shall we look at the prospects for a tradesman in the Civil Engineering Department? Let us take the case of a boy who is interested in carpentry and joinery work, and who, possibly under the guidance and tuition of his father, learns early the use and care of tools. When he has finished school, he wants to continue in the trade in which he is interested, and decides to seek employment with a railway company.

He, too, has to go through the same initial formalities as our young platerlayer did, but his work and future outlook may be very different. If he becomes skilled as a joiner, his work will keep him largely indoors working in a shop, and he will eventually become a skilled man, able to read plans, set out work, judge good and bad timber, and produce results of which any tradesman may be proud.

He might, if highly skilled, succeed in an application for a job in the Carriage & Wagon Department of the Chief Mechanical Engineer, where his skill as a joiner would be used on the beautiful interior work of modern rolling stock.

The Clerical Side

What of the clerical side of our business? How do clerks enter the railway service in a Civil Engineering Department? In years past, insufficient care was taken in the selection of boys who were to become future clerks. A junior clerical post was looked upon as one which did not require a great deal of commonsense, initiative, or knowledge, and with few exceptions there were not many clerical positions of importance in a Civil Engineering Department worth worrying about.

This is very different today. The majority of engineers, when needing a young boy as a messenger or office boy, would, all other things being equal, select the lad who has passed the matriculation standard when leaving school. This is not too high a standard to expect from new entrants who are the future clerks of the department.

All the clerical duties which exist in a Civil Engineering Department are not just jobs where the work is of a purely routine character; there are many positions where initiative, common sense, experience, imagination, a flair for figures, etc., are needed to ensure the difference between a good, mediocre, or inefficient clerk.

I do urge the young man not to be satisfied with only a sound knowledge of his own language. The knowledge of a foreign language has been known to turn the scale on more than one occasion when applications are being considered.

At this point, I would like to pass on what I hope may be taken as helpful

(Continued on page 110)

* Abstract of presidential address by Mr. V. A. M. Robertson, C.B.E., M.C., Chief Civil Engineer, Southern Railway, to the Permanent Way Institution on January 18.

Expediting Miscellaneous Traffic on the L.M.S.R.

Zonal collection and delivery scheme to improve the transit time of small consignments throughout the system



L.M.S.R. delivery vehicle in Chester

In normal times, the London Midland & Scottish Railway delivers, or advises to consignees for collection, over 110,000 consignments of merchandise traffic daily, and it is reasonable to estimate that a somewhat similar number is collected for despatch on any one day. Some of this traffic is conveyed in full wagon loads from one sender to one consignee, but a substantial proportion consists of miscellaneous traffic.

Tests conducted by the L.M.S.R. before the recent war showed that, on an average, such traffic amounted to about three packages per consignment, and approximately 78 lb. per package, while there is, of course, an immense variety in the shape, size and weight of individual consignments. These small consignments may consist of large numbers of packages of standard products from one firm for consignees in towns and villages all over the country, or they may consist of an odd package from a private householder in any town or village destined for a consignee in any other town or village throughout the line.

The throughout transit of these small consignments entails organising the cartage work of the L.M.S.R. into convenient "rounds" or trips, so as to obtain economical use of cartage equipment, and similarly it entails sorting the traffic in goods sheds to gather together sufficient consignments between pairs of points to make a convenient wagon load, for which purpose a ton was regarded as a reasonable minimum figure, subject to certain special arrangements.

The new zonal scheme for collection and delivery services described in this article is being introduced with the primary object of providing a one-day transit for miscellaneous traffic between most points by concentrating the handling of such traffic at a smaller number of stations. At the same time, there will be a system of road services radiating from the various zonal centres and railheads by which consignments arriving from other zones too late for completing their journey by rail that day, will be taken on to the consignee by road vehicle, instead of waiting at the goods station for the next wagon depar-

ture and being delayed by, perhaps, 24 hr. before reaching their final address by rail and local delivery service. Traffic passing between points in the same zone may be handled throughout by rail or road, or by a combination of the two according to which method is most convenient for expeditious delivery.

Before describing the scheme in detail, it is necessary to recapitulate some of the steps taken by the L.M.S.R. before the war to accelerate the handling of miscellaneous traffic, of which the arrangements now being made are in some respects an extension on a scale covering the whole system. Cartage areas in towns had been extended progressively, and at many stations country lorry services provided delivery and collection of miscellaneous traffic at farms and villages within a radius of up to ten miles. Railhead distribution schemes were operated whereby a particular firm's traffic passed in through wagon loads to selected centres, from which points distribution by motor vehicle over large areas was undertaken by the L.M.S.R. on behalf of the firms.

Steps were taken also to accelerate the transit of large numbers of small consign-

ments between the larger tranship depots and the small station at which the traffic was ultimately required, by use of road motors on the day of arrival at the tranship depot, instead of sending on by rail wagon, which generally meant that the traffic did not arrive at the ultimate destination station until the day following receipt at the tranship depot. Similar arrangements existed in respect of traffic working in the reverse direction between the smaller station and the tranship depot.

Where possible, and in order to save road motor costs, other consignments were worked by early morning wagons between tranship depots and ultimate destination in the case of received traffic, and by early evening wagons from the smaller station to the tranship depot for forwarded traffic.

In view of the great diversity in the traffic itself, and in the points between which it passed, it was not always possible to sort together sufficient traffic to justify sending a wagon from the originating to the destination station. In these cases the traffic was loaded intermediately, usually to a large centre, for transhipment, that is, amalgamation with similar traffic from other points whereby it was possible to make a wagon to destination.

Arising out of the extended area of collection and delivery around large towns and cities already referred to, the L.M.S.R. had conducted research into the best method of performing cartage in the outlying areas of large places where the company had more than one goods station dealing with miscellaneous goods traffic.

Co-ordinating Cartage Service

The object was to co-ordinate cartage in the outer areas, instead of each main goods depot serving these areas direct with its own cartage vehicles. The basis of the idea was that a cartage sub-depot should be provided in the outlying area, at which a cartage establishment would be provided for the ordinary door-to-door cartage services, the traffic being conveyed to or from such cartage sub-depots by rail where a good service could be given; otherwise it was to be conveyed between the main terminals and sub-depots by high-capacity motor vehicles, the "round" sorting being performed at the sub-depots.

A sub-depot of this type for dealing with delivered traffic was planned at Old Ford, London, in 1937, and when war broke out work was in progress on a completely new depot for handling both delivered and collected consignments. Short-



Unloading at a consignee's premises

age of petrol and tyres necessitated traffic to and from Old Ford being handled by rail throughout the war, but at the present time road services are being built up between the main London termini and this sub-depot.

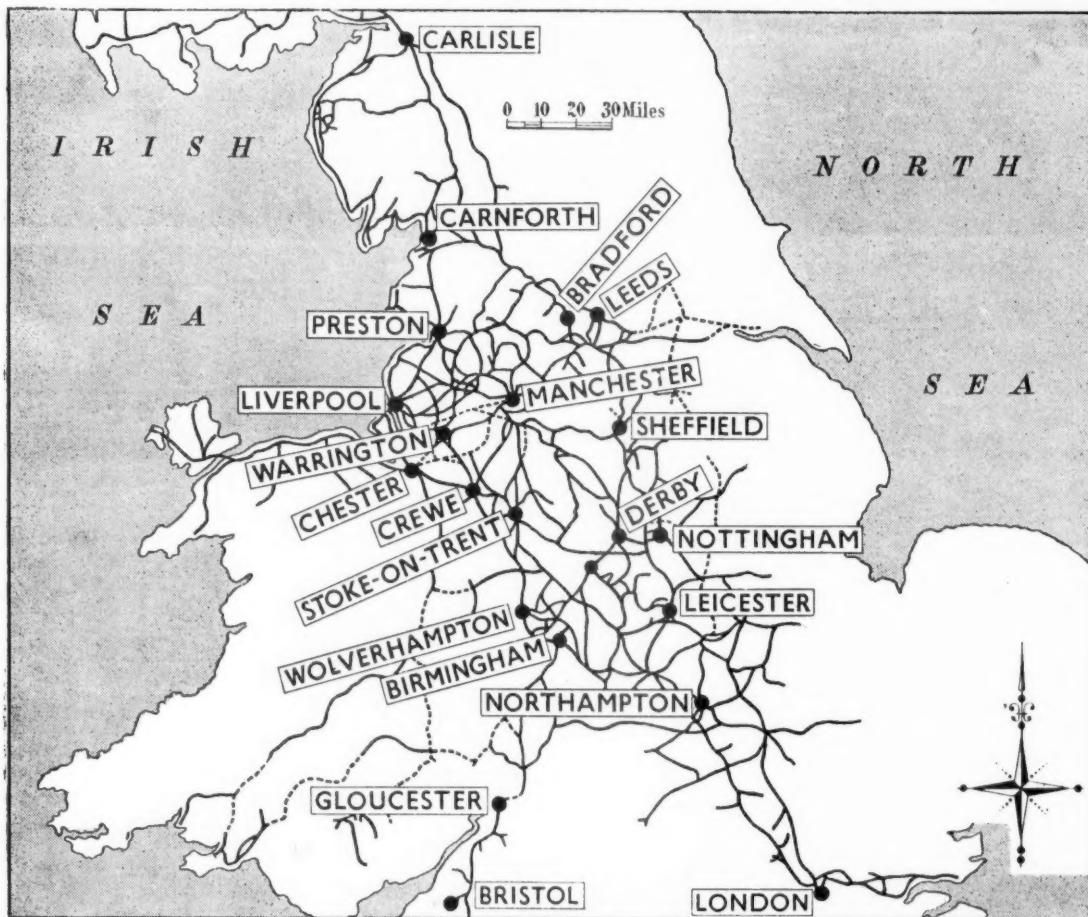
When it seemed that the war in Europe was approaching finality, attention was given to the preparation of a scheme on a more scientific basis, and from this has evolved the zonal collection and delivery scheme. This organisation will supersede the motor services operating pre-war, and instead of the somewhat patchwork

zonal centre or from a railhead. In some circumstances, where the area to be served by a railhead is large, a sub-railhead is established for collection and delivery of traffic in districts which are at an excessive distance from the railhead itself. The functions of the zonal centre, railhead, and sub-railhead, and the manner in which they receive and dispose of traffic, are summarised below:—

Zone.—The country has been divided into contiguous zones, the size of which varies according to geographical position, density of traffic, and general suitability

of the prescribed portion of the zone. It will receive its miscellaneous traffic by trunk motor, or by rail from its own zonal centre, or by direct wagon from other zonal centres, railheads, or sub-railheads. The railhead will dispose of its outwards traffic by: (a) direct wagon to destination sub-railhead, railhead, or zonal centre; or (b) trunk motor or wagon to its own zonal centre.

Sub-Railhead.—A sub-railhead will function for collection and delivery of traffic within a prescribed portion of a railhead area, where the distance from the



Location of present and proposed zonal centres on the L.M.S.R. in England and Wales

arrangements which then existed, a cartage organisation is being built up for the L.M.S.R. system as a whole with the object, not only of equalling, but of improving on pre-war transits. The basis of the scheme is the conception of area cartage as opposed to cartage which tended to be confined to individual places.

Under the new zonal scheme, the territory served by the L.M.S.R. is being divided into a number of contiguous zones, in each of which a large town is selected as a zonal centre. The zonal centre retains its own local delivery area, which often is being extended, and operates trunk motor services to and from a number of railheads. Each railhead serves a cartage area of approximately 5 to 10 miles radius, these areas, too, being contiguous so that the whole of the zone is provided with cartage either from the

for train working and cartage operations, ensuring as far as possible a concentration of traffic at a zonal centre without unduly long haulage.

Zonal Centre.—This is the main centre for each zone, and will receive traffic by wagon for subsequent distribution to its railheads and sub-railheads by trunk motor, or by rail, and for direct delivery within a prescribed portion of the zone. In the reverse direction, the zonal centre will receive traffic from its railheads and sub-railheads by trunk motor, or by rail (so long as the desired transit is achieved), and will dispose of the traffic by wagon. Traffic passing from sender to consignee, both resident within the same zone, may be sent by road transport throughout, or part rail and part road.

Railhead.—A railhead will function for collection and delivery of traffic within

railhead is too great to allow of direct collection or delivery therefrom. It will receive inwards traffic by: (a) direct wagon from another sub-railhead, railhead, or zonal centre; (b) trunk motor or wagon from parent railhead. It will dispose of its outwards traffic by: (a) direct wagon to destination sub-railhead, railhead, or zonal centre; or (b) trunk motor to parent railhead, or wagon to parent railhead or zonal centre.

An important feature of the scheme is the reduction that will be effected in the number of stations at which it will be necessary to maintain a cartage establishment for handling miscellaneous traffic, and this is one of the economies that can be offset against the increased road cartage expenditure entailed by the scheme as a whole. Accommodation no longer required at such stations is being rented

or sold at several places, and this principle will be extended as the scheme develops. Stations in this category are referred to as "absorbed" stations.

Absorbed stations will continue to accept traffic brought in by the public, but will dispose of it to the road services of the appropriate railhead, sub-railhead, or zonal centre, which will call at such stations when necessary.

Further economies will result from a saving in shunting and engine trips arising from the smaller number of stations at which it will be necessary to position wagons specially in the goods shed. There will be a reduction, also, in transhipment, with consequent economies in handling costs and wagon user.

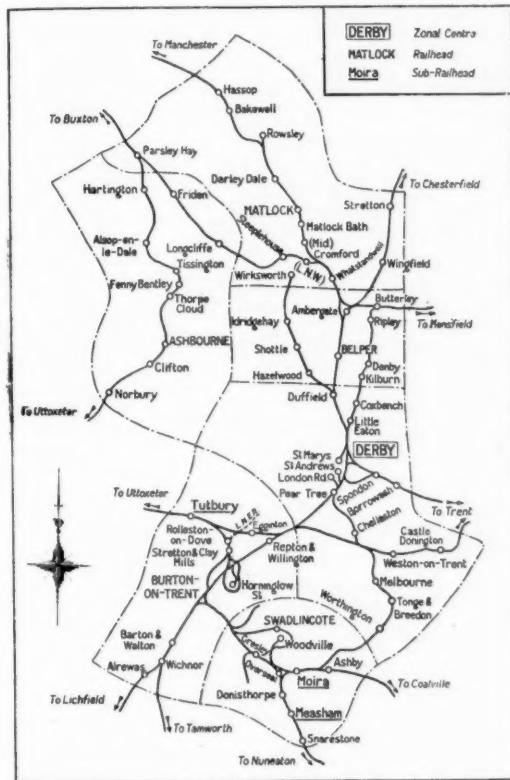
served by extensions of the trunk road services from Derby to Burton and Swadlincote respectively.

On the basis of results achieved so far, figures have been computed showing an annual saving of 172,000 wagon-miles in the Derby zonal scheme.

Miscellaneous traffic for the Derby zone is dealt with at St. Mary's goods station, which was completed shortly after the beginning of the war. The shed has a floor area of 4 acres, and deals with approximately 250 inwards and 250 outwards wagons daily. Part of this is transhipment traffic, Derby being an example of a transfer depot, a number of which will be necessary under the zonal scheme to handle traffic which

the shed is performed by electric trucks, provided with automatic coupling and uncoupling mechanism which simultaneously raises the front wheels of the dray off the ground so that it forms an articulated unit with the truck. Time-saving has been studied equally in respect of horse-drawn drays, the shafts forming part of the horse's harness, so that it is necessary only to back on to the vehicle, when coupling up is automatic.

Movement of wagons inside the shed is accomplished by specially designed electric "closed loop" capstans, with push-button control from the deck, and by electric "mules." The "mule" which is used for shifting wagons over short distances such as from the buffer stops to the un-



In very sparsely populated districts the expense of motoring could not be justified, and the small quantity of miscellaneous traffic concerned will continue to be dealt with by tariff van services. This constitutes an extremely small percentage of the miscellaneous traffic.

The Derby Zone

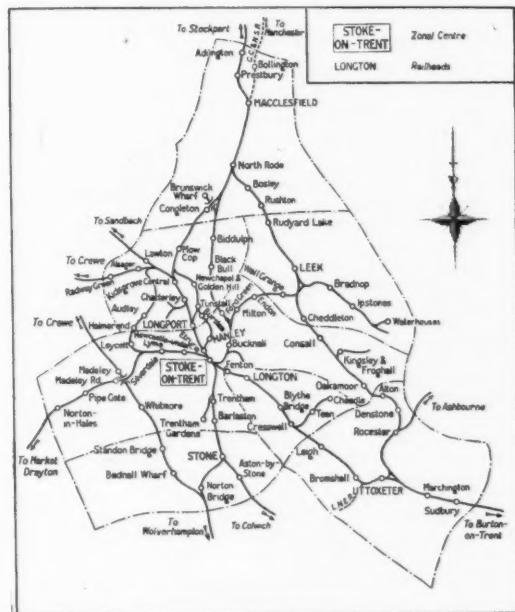
Two zones in which the new arrangements already are well advanced are those based on Derby and Stoke-on-Trent. Derby operates trunk road services to five railheads, located at Swadlincote, Ashbourne, Burton, Belper, and Matlock.

The Derby local delivery area has been extended in order to join up with the adjacent railhead areas, and now covers Worthington, Castle Donington, Borrowash, Spondon, and Duffield. Borrowash is an absorbed station, the motor previously located there having been brought into Derby. Altogether, there are 36 absorbed stations in the zone. Three sub-railheads have been established, at Tupton, Measham, and Moira, which are

cannot be loaded direct from forwarding to destination zone. Such depots will be established in the main at zonal centres, and will dispose of traffic usually by wagon.

St. Mary's is provided with four inwards and ten outwards roads. The inwards roads are situated in pairs at each side of the shed, with a "throw-away" road between each pair and electric traversers to shift wagons into position for movement to the unloading bays, and to transfer them to the throw-away roads when empty. There are two conveyor-type unloading machines, designed by the L.M.S.R. Mechanical Department, at each side of the shed. After unloading, consignments undergo a preliminary sorting into delivery and transfer items (including those going on to stations in the zone by wagon) on the unloading bay, after which zonal traffic is removed on drays for final sorting according to whether it is to be disposed of by local or trunk road delivery services.

Much of the haulage of the drays in



Above : The Stoke-on-Trent zone. Hanley is acting at present as a railhead for its immediate vicinity within the Stoke local area

Left : Organisation of the Derby zone. The dotted lines define the five railhead areas, and the extended Derby local delivery area

loading point, is a pair of travelling jaws which runs along the front face of the platform at such a height as to engage with the wagon buffer. The "mules" also have remote control on the deck.

Very little alteration or new work has been required at St. Mary's for handling traffic under the zonal scheme. Two new bays have been provided, and some extension of the butting strip from which the road vehicles depart will be undertaken, but as high-capacity motor transport becomes available, it will be possible to accommodate more at the existing strip so that large additions are not required. Derby, however, is fortunate in having a modern mechanised shed, and some other zonal centres will have to undertake a larger programme of improvements.

Arrangements at Stoke-on-Trent

The Stoke-on-Trent zone eventually will have trunk road services radiating both from Stoke and Crewe, and a total of 83

(Continued on page 104)

British-Built Gas Turbine Locomotive for G.W.R.

Metropolitan-Vickers design with independent turbines for the compressor and electric generator

AT the annual general meeting of the Great Western Railway on March 6, 1946, Lord Portal, Chairman of the company, announced that the G.W.R. was investigating the application of the gas turbine to rail traction. The Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, is now building a 2,500-h.p. gas turbine locomotive to the requirements of Mr. F. W. Hawkesworth, Chief Mechanical Engineer, G.W.R.

This locomotive has been ordered for the purpose of hauling express passenger trains on the main lines from Paddington to Plymouth, Penzance, Bristol, Fishguard, and Birkenhead. These trains sometimes reach 18 coaches in length, with a weight of 650 tons behind the engine, and speeds up to 90 m.p.h. may be called for. Sustained gradients of 1 in 80 are not uncommon, and short gradients as steep as 1 in 40 have to be negotiated on the main line between Exeter and Plymouth.

Starting Tractive Effort

To handle such trains on these grades, a starting tractive effort of about 60,000 lb. is essential, and an adhesive weight of not less than 120 tons with axle loading limited to 20 tons, which means six driving axles.

The locomotive has, therefore, been designed with two three-axle bogies, and each of the six axles is driven by an axle-mounted traction motor geared for a maximum service speed of 90 m.p.h. The body, which is carried on the two bogies, has a full-width driving cab at each end, and the power unit, with the electric transmission equipment and auxiliary machinery, occupies the space between the driving cabs. The principal particulars of the locomotive are:—

Length over buffers	...	...	...	68 ft.
Bogie wheelbase	...	...	...	15 ft.
Bogie centres	...	...	...	39 ft. 6 in.
Total wheelbase	...	...	...	55 ft. 6 in.
Body width	...	...	...	8 ft. 10 in.
Height above rail	...	...	...	13 ft.
Total weight	...	...	...	120 tons
Adhesive weight	...	...	...	120 tons
Maximum speed	...	...	...	90 m.p.h.
Maximum tractive effort	...	...	...	60,000 lb.
Continuous rating tractive effort	...	...	...	23,000 lb.

The gas turbine is of the open-cycle type, the four events of the heat cycle—compression, heating, expansion, and cooling—proceeding simultaneously and continuously.

The compression, in the ratio of about 3½:1, takes place in a multi-stage axial flow compressor running at 6,900 r.p.m. Metropolitan-Vickers was largely responsible, in conjunction with the Ministry of Aircraft Production, for the development of this type of compressor for aircraft jet engines, as distinct from the centrifugal compressor used in the Whittle-type jet engines. The compressor used in the gas turbine locomotive is very similar to that used in aircraft.

The air from the compressor, already heated by the compression process, passes through the heat exchanger, where it takes up more heat from the exhaust gases, to the combustion chambers. Here, the fuel oil issuing from high-pressure nozzles burns in the primary chambers, which are traversed by a small proportion of the total compressed air, and the extremely hot gases thus produced rejoin and mix with the remainder of the air and raise it to the final temperature before reaching the turbines.

There are two axial-flow turbines,

mounted on separate shafts, and the hot gases flow through them in series. The first turbine is a single-stage wheel driving the air compressor and such auxiliaries as fuel and lubricant pumps; and the second is a multi-stage power-output turbine driving the electric transmission generator and the auxiliary power generator through reduction gearing of ratio 4,500 r.p.m. to 850 r.p.m.

The discharge from the turbines passes to exhaust through the heat exchanger, where it increases the cycle efficiency by adding heat to the air flowing to the combustion chambers; this heat would otherwise have to be provided by burning more fuel.

The provision of separate turbines for the air compressor and the power transmission generator has an important advantage over the single-shaft scheme (in which one turbine drives both compressor and generator) in that increasing load on the generator can be met simply by increasing the fuel input; this speeds up the compressor automatically, resulting in correct fuel-to-air ratio and proper operating temperatures without resort to the special provisions necessitated by the mechanical tie between compressor and load in the single-shaft arrangement. The output from the power turbine is over 2,600 h.p., of which the traction generator absorbs 2,500 h.p., and the remainder covers gear losses and the auxiliary generator input. The interchange of power between the compressor and its turbine is about 4,500 h.p.

A large quantity of air is required as the working fluid of the cycle; at full load, the flow is about 44,000 cu. ft. per minute, or 1.5 tons per minute. To reduce maintenance to a minimum, all this air is filtered through dry-fabric filters arranged in a special compartment.

Electrical Transmission

The electrical transmission equipment consists of the main traction generator and the six traction motors, together with automatic control gear, which adjusts the machine excitation so as to utilise the full generator input over the wide speed range of 10 to 75 m.p.h. The machines are proportioned to give a maximum tractive effort of 60,000 lb. and can operate continuously tractive efforts up to 23,000 lb., corresponding to 35 m.p.h. This performance is necessary for operating the heaviest passenger trains on all the main lines, and it also enables the locomotive to handle goods trains, thus avoiding an occasional light-engine return trip.

The electrically driven auxiliary machinery comprises air-brake compressor, vacuum brake exhauster, traction motor ventilation fans, and gear-oil cooler fan. These are supplied from 110-volt d.c. auxiliary mains, which are fed from an auxiliary generator mounted on the traction generator shaft and driven by the power turbine. The gas turbine is started by an electric motor fed from a battery, which is kept charged automatically from the auxiliary generator. An oil-fired boiler carried on the locomotive supplies steam for train heating.

The chief claims for the gas-turbine electric locomotive are that it concentrates high performance in small space and weight, and that the gas turbine, by the virtual elimination of rubbing surfaces, gives high reliability with low maintenance

cost. Only an electric locomotive could give better performance within the loading gauge and axle load limit specified, and no other type could even equal it. The fuel consumption is very much lower than for a steam locomotive, and, while a diesel locomotive has a still lower consumption figure, this advantage is partly offset by the higher and more expensive grade of fuel required, and by the much higher lubrication cost.

Expediting Miscellaneous Traffic on the L.M.S.R.

(Concluded from page 103)

stations will be absorbed. Eight of these places are now served directly by extending the Stoke delivery area. At Tunstall, which is now served from the railhead at Longport, several advantages to the railway and to traders have been obtained.

The new status of Tunstall as an absorbed station has enabled the company to effect economy in engine power. Elsewhere in the zone, the handling of goods by road between Stoke, Stone, Newcastle-under-Lyme, and Standon Bridge has resulted in the cancellation of a freight train between Crewe and Norton Bridge on three days a week.

Stoke, at present, is operating trunk road services to Uttoxeter, Leek, Longton, Longport, Stone, and Hanley. It is proposed to bring other routes into operation in due course. In a similar manner to Derby, the Stoke local delivery area has been extended to include Barlaston, Bucknall, Consall, Endon, Kingsley & Froghall, Milton, Oakamoor, Trentham, Trentham Gardens, and other local stations.

No new structural work is required in the goods shed at Stoke to operate the scheme, but extra cartage berth accommodation may be necessary at railheads.

The Longport railhead possesses already a spacious outwards shed which was built during the war, and deals with some 55 wagons a day. In this shed the incoming road vehicles load directly into the wagons, sorting being carried out in the course of the rounds by the checker. There are four overhead electric cranes, three of 30-cwt. and one of 7 tons capacity. Figures of the annual economies that will be realised in the Stoke zone show a saving of 99,000 wagon-miles.

The L.M.S.R. is at present operating zonal collection and delivery schemes covering more than 300 stations, the clerical, handling, and cartage work connected with consignments dealt with under the arrangements being centralised at the respective railheads or sub-railheads. The experience gained makes it clear beyond any measure of doubt that the setting up at selected centres of zonal collection and delivery arrangements has been justified on commercial grounds, in that the primary object, the improvement of transits and deliveries of small consignments, has been attained. The schemes are, therefore, making a useful contribution to the development of the nation's trade, which is the paramount need of today.

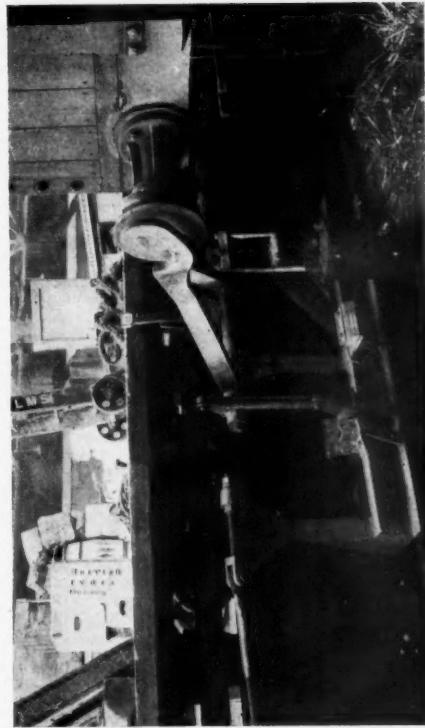
"GO SLOW" MOVEMENT AT STRATFORD ENDED.—The members of the L.N.E.R. workshop staff at Stratford Locomotive Depot, who have been working to rule since November 25 (see our January 10 issue) accepted on January 22 a 33½ per cent. increase on the basic rate proposed by the Railway Shopmen's National Council.

Expediting Miscellaneous Traffic on the L.M.S.R.

(See article on page 101)



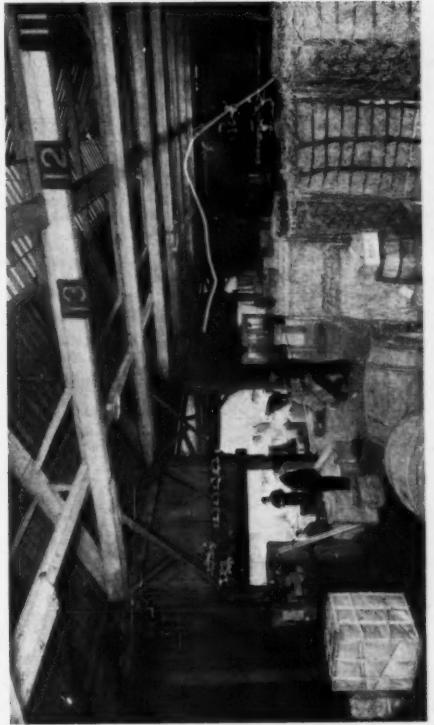
Unloading with a mechanical conveyor at Derby St. Mary's, with drays for internal movement to sorting points alongside



Electric "mule" used for movement of wagons over short distances inside the shed at St. Mary's



Electric truck and internal goods shed dray, with automatic coupling mechanism to form an articulated unit



Inside the goods shed at Hanley, one of the railheads now operating in the Stoke-on-Trent zone

Process Heating by Valve Generators

Use of high-frequency currents to heat metals by induction, or non-metals by dielectric stress

HIgh-FREQUENCY heating has proved itself an excellent medium for annealing, tempering, melting, soldering, or hardening metals. It is applicable, equally, to certain processes with non-metals, such as pre-heating of plastics, drying, and gluing. A range of high-frequency valve generators for such purposes, with output powers from 100 W. to 25 kW., has been designed by the General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2. The high-frequency currents, which have a frequency of the order of 10 to 80 Mc/s., are generated by valve oscillators, and are supplied either to a heating coil or across the plates of a condenser. The general arrangement is similar to that of a radio transmitter, but instead of the power being radiated from an aerial system, it is used to produce the heating effect.

There are two methods of heating with H.F. currents. When metal objects are being dealt with, they are placed within a coil connected across the generator output terminals. The H.F. currents in the coil induce eddy-currents in the metal, and in the process of overcoming the resistance of the metal, an energy loss occurs which appears as heat generated in the metal.

Heating by Dielectric Stress

When heating non-metallic materials, use is made of the fact that the application of H.F. currents to the plates of a condenser causes molecular disturbances in the dielectric, which in this case is the non-metallic material to be heated. Again, a power loss occurs as a result of these disturbances, and appears as heat generated within the material.

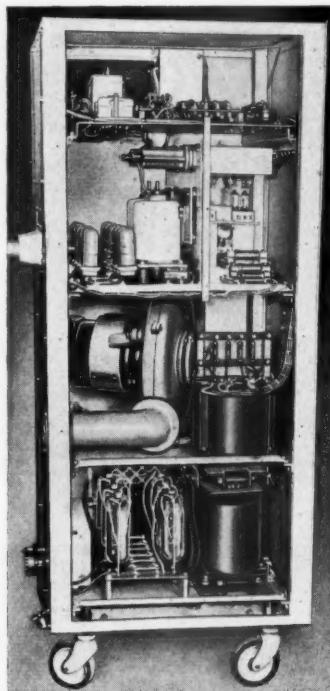
It is an important property of induction heating by alternating currents that they tend to concentrate in the outer surfaces of a conductor, and this effect becomes more pronounced as frequency is increased. For example, at a frequency of 1 Mc/s. approximately 90 per cent. of the current flows in a layer less than 20 thousandths of an inch thick. This is of advantage in the surface hardening of metal objects, and the fact that wasteful heating of furnace walls and containers, such as occurs in a resistance furnace, is eliminated, greatly accelerates the speed at which the job is done. Using a G.E.C. 25-kW. generator, for example, 10 sq. in. of steel surface can be hardened to a depth of 30 thousandths of an inch in 5-10 sec.

The shape and size of heating coils used for eddy current heating depend on the work being done, and the coil is designed to follow the outline of the object under treatment. When only selected parts of the object require to be heated, the design of the coil is altered so that only these parts are enveloped. The heat generated depends on the strength of the magnetic field in which the object under treatment is placed, and this increases as the air gap between the coil and the object is reduced.

However, when H.F. currents are flowing in a coil, a considerable voltage is developed across its ends, and between the coil and earth, so that its dimensions have to be a compromise between tight coupling and the clearance necessary to prevent the H.F. currents jumping across the air gap. The correct

design of coils has been the subject of considerable study by G.E.C. specialists, whose advice is available to users of this method of heating.

In the dielectric heating of non-metals, on the other hand, heat is generated uniformly throughout the mass of the material, provided the portion between the condenser plates is of constant section. The advantage of the method lies in the



Interior of 1-kW. generator, showing power supplies below, air blower on second tier, and radio-frequency components above

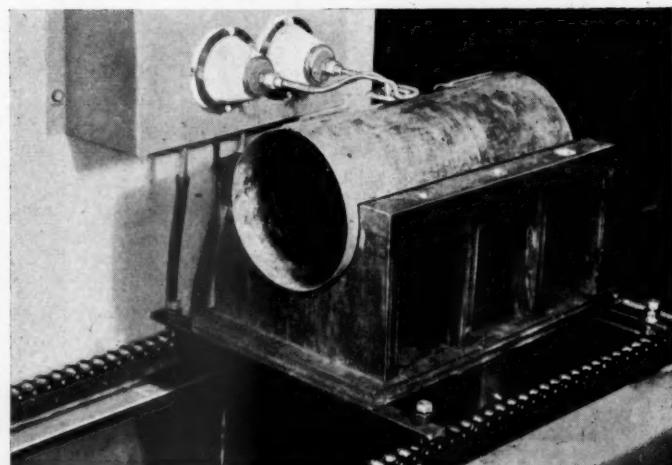
great rapidity with which materials of comparatively large section can be raised to a uniform temperature throughout their mass; thus, 12-15 lb. of seasoned wood can be raised over 100° C. per minute. The gluing of timber joints is a process for which dielectric heating is being adapted on an increasing scale; other applications are for the jointing of thermo-plastic sheets, and the pre-heating of plastics.

Range of Power Output

The G.E.C. high-frequency generators are made in powers of 100 W., 1 kW., 5 kW., and 25 kW. All except the 100-W. set have air-blast cooling, and although this involves a larger cabinet to contain the equipment, it increases the availability of the apparatus since in many parts of the country the chemicals in untreated tap water are harmful to radio valves. The power to run the generators is taken from normal a.c. mains, either single-phase at 200-250 volts for the smaller sets, or three-phase, 360-440 volts, for the larger apparatus. A transformer and rectifier valves inside the generators supply high-tension voltage to a number of Osram oscillator valves connected in parallel.

Full details of the equipment are given in an illustrated booklet, "Process Heating by High-Frequency Valve Generators," which has been published recently by the General Electric Co. Ltd.

L.N.E.R. PAMPHLET ON PUBLIC RELATIONS.—The L.N.E.R. has issued a pamphlet giving guidance on the cultivation of good relations with the public by all members of the staff whose duties bring them into contact with passengers and traders. The pamphlet points out that it is time to forget some of the wartime excuses for unsatisfactory service, and that the increasing availability of alternative means of transport makes it more necessary than ever to persuade members of the public that they will be better served if they continue to give their custom to the railway. Some of the points dealt with are the tactful handling of inquiries, the conduct of telephone conversations, and rules to observe in correspondence. On the back of the pamphlet is a selection of "aggravating answers," which are "so easy to say—so hard to live down," and, therefore, deserve expulsion from the railwayman's vocabulary.



Soldering a joint in a tinplate cylinder by passing it under a heating coil connected to the output terminals of a high-frequency generator

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RAILWAY NEWS SECTION

PERSONAL

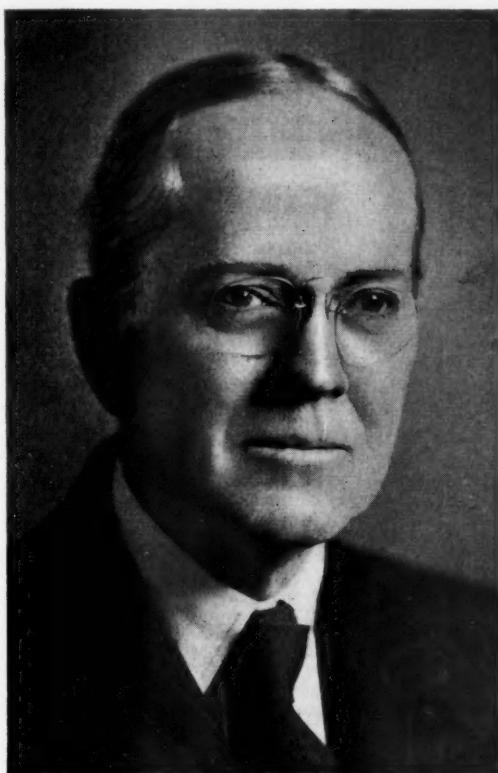
Mr. R. G. Mills and Mr. W. R. Tomkinson have been co-opted to the board of United Railways of the Havana & Regla Warehouses Limited, and the former has been elected Chairman.

Mr. D'Alton C. Coleman, C.M.G., D.C.L., LL.D., Chairman & President, Canadian Pacific Railway Company, who, as recorded in our January 17 issue, is retiring from those posts, on February 1 next, but who will remain on the board,

1942, and in the next year, on the death of Sir Edward Beatty, became also Chairman. Mr. Coleman's many other posts include the Chairmanship of Canadian Pacific Steamships Limited and of Canadian Pacific Air Lines Limited, and a Directorship of the Bank of Montreal. He was made a C.M.G. last year in the Canadian Dominion Day Honours.

Mr. R. H. Hacker, Continental Superintendent, Southern Railway, has been appointed Chairman of the Continental Traffic Managers' Committee for 1947. The

Mr. William M. Neal, C.B.E., Vice-President, Canadian Pacific Railway Company, who, as recorded in our January 17 issue, has been elected Chairman & President, from February 1 next, was born at Toronto in 1886, and joined the Canadian Pacific in 1902. Mr. Neal obtained wide experience in several departments of the company. During the war of 1914-18, he became General Secretary of the Canadian Railway War Board, later the Railway Association of Canada, which co-ordinated troop and supply movements. Returning to the C.P.R. in 1920, he became



Mr. D. C. Coleman

Chairman, Canadian Pacific Railway Company, 1943-47;
President, 1942-47



Mr. W. M. Neal

Elected Chairman & President, Canadian Pacific Railway Company

has been a Director since 1934, President since 1942, and Chairman & President since 1943. Mr. Coleman was born on July 9, 1879, at Carleton Place, Ontario, and commenced his career as a journalist. He joined the Canadian Pacific Railway in 1899 as a clerk in the Assistant Engineer's Office at Fort William, Ontario, and subsequently served as Chief Clerk at Cranbrook, North Bay, and Winnipeg. He was appointed Superintendent at Nelson, B.C., in 1907, and in the next year returned to Winnipeg, where he was at first Superintendent, Car Service, Western Lines, and then, four years later, General Superintendent, Manitoba Division. Shortly afterwards he went to the Alberta Division in a similar capacity, and in 1915 was appointed Assistant General Manager, Western Lines, Winnipeg. He became Vice-President, Western Lines, in 1918. In 1934 Mr. Coleman became Vice-President, Director, and member of the Executive Committee of the C.P.R. He was elected President in

Chairman for 1946 was Mr. L. H. K. Neil, Continental Traffic Manager, L.N.E.R.

Colonel Sir W. Charles Wright is retiring from the Chairmanship of Guest Keen Baldwins Iron & Steel Co. Ltd., while remaining on the board. Mr. J. H. Jolly has been appointed Chairman.

Mr. James B. Thom, European Traffic Manager, has been appointed European Manager, Canadian National Railways, succeeding Mr. P. A. Clews, retired.

Among recent promotions in, and appointments to, the Order of St. John of Jerusalem are those of Sir Leslie Boyce (Chairman, Gloucester Railway Carriage & Wagon Co. Ltd.) as Knight; Mr. R. P. Biddle (Docks & Marine Manager, Southern Railway) as Officer (Brother); and of Captain R. E. Lawler (District Goods & Passenger Manager, Ipswich, L.N.E.R.) as Serving Brother.

General Manager, Western Lines, in 1927; Vice-President, Western Lines, in 1934; and Vice-President, Montreal, and a Director in 1942. In 1940-41 he accomplished much of the organisation in the purchase of the various aviation concerns which extended his company's activities into the field of air transport. Mr. Neal is President of Canadian Pacific Air Lines Limited, and a Director of Canadian Pacific Steamships Limited and many other companies. During the recent war he was Canadian representative on the Transportation Equipment Committee of the Combined Production & Resources Board of Great Britain, the United States and Canada. Mr. Neal was made a C.B.E. in the New Year Honours, 1944.

Mr. William Manson has been appointed Vice-President, Canadian Pacific Railway, in charge of all the company's railway services and communications, with headquarters in Montreal.



Mr. R. G. Sargent

Steelwork Assistant to Chief Engineer,
G.W.R., 1937-46



Mr. P. S. A. Berridge

Appointed Bridge Assistant to
Chief Engineer, G.W.R.



Mr. S. B. Warder

Appointed Assistant to Chief Electrical
Engineer, Southern Railway

Mr. R. G. Sargent, M.I.Struct.E., Steelwork Assistant to the Chief Engineer, Great Western Railway, who, as recorded in our January 10 issue, retired at the end of 1946, was appointed to that post in March, 1937, and has been in charge since then of the work of bridge, dock-gate and general structural design in steel and reinforced concrete for the company's system. Mr. Sargent commenced his career as a pupil to Edward Finch & Company, Chelstow. In 1904 he was attached to the staff of the Chief Engineer, Great Northern Railway (Ireland), for the reconstruction of bridges, and in 1915 was engaged by the Admiralty and was responsible for the design of airship sheds. In 1919 he was transferred to the Air Ministry, and two years later became Section Officer for the maintenance and rebuilding of aerodromes in the Middle East for three years. He then joined the Bridge Department of the L.M.S.R. at Crewe, where he remained until 1926, when he entered the service of the G.W.R. in the Steelwork Section, Chief Engineer's Office.

We regret to record the death on January 8, at the age of 80, of Mr. William Gadsby Peet, who retired from the position of District Locomotive Superintendent, Bristol, L.M.S.R., in 1928. He served his apprenticeship with George Fletcher & Co. Ltd., Derby, and shortly afterwards entered the works drawing office, Midland Railway. Later he transferred to the test office, and then was made Inspector of New Work at Manchester and Glasgow, successively. He eventually became District Locomotive Superintendent at Burton-on-Trent, later at Leicester, and in 1905 at Bristol.

Mr. P. S. A. Berridge, M.B.E., M.I.C.E., M.Inst.W., who, as recorded in our January 10 issue, has been appointed Bridge Assistant to the Chief Engineer, Great Western Railway, was educated at The School, Bishops Stortford, and Whitgift Grammar School. He was apprenticed with Sir William Arrol & Co. Ltd., of Glasgow, and gained the Diploma in Civil Engineering at the Royal Technical College in that city. After two years as an Assistant Engineer in the office of Coode, Fitzmaurice Wilson & Mitchell, Consult-

ing Engineers to the Crown Agents for the Colonies, he went to India in 1926 as Assistant Executive Bridge Engineer on the North Western Railway; when he left that railway last March he was Officiating Deputy Chief Engineer (Bridges). Mr. Berridge was awarded the M.B.E. in the New Year Honours, 1945.

Mr. S. B. Warder, M.I.Mech.E., M.I.E.E., who, as recorded in our January 3 issue, has been appointed Assistant to Chief Electrical Engineer, Southern Railway, was educated at Glasgow High School, and obtained his technical education at the University of London. After serving an apprenticeship with Johnson & Phillips, Limited, he gained further experience with Ferguson Pailin Limited, and later as an Engineer with the General Electric Co. Ltd. In 1927 he joined the Swedish General Electric Company, as an Engineer in the Export Department, and eventually became

Chief Engineer & Manager of that department. He joined the Southern Railway in 1936 as Technical Assistant to the Electrical Engineer for New Works, and dealt with all general matters. Mr. Warder was appointed New Works Assistant to the Chief Electrical Engineer in August, 1943, and, as such, was one of the delegation of officers which recently visited North America to study diesel-electric traction.

Commander J. M. Keene-Miller, General Manager, has been appointed Managing Director of Channel Islands Airways Limited, in succession to Commander G. O. Waters, recently appointed Manager, English Division, British European Airways Corporation.

We regret to record the death on January 14 of Lt.-Colonel George Leslie Hall, O.B.E., R.E. (retired), Signal Engineer, Southern Railway. He entered the Royal Military Academy, Woolwich, in 1900, and received his commission as Second Lieutenant, R.E., in December, 1901. He went through a mechanical engineering course on the London & South Western Railway during 1903-4, served abroad in 1908, and then was appointed assistant instructor in the workshops of the School of Military Engineering, Chatham, becoming assistant instructor in electricity in 1910. In 1913 he was made Staff Captain under the Director of Fortifications & Works, War Office, and was engaged on electrical duties; and in 1917 he was appointed Deputy Assistant Director under the Director of Fortifications & Works, mainly in connection with the supply of anti-aircraft searchlights and wireless telegraph equipment to the armies. Early in 1919 he was appointed an Inspecting Officer of Railways, Board of Trade, and afterwards Ministry of Transport. He was a member of the departmental committee appointed in 1921 to study the potentialities of light signals, and of the committee which revised the Ministry of Transport requirements as to new railways. In 1926 he was promoted Lt.-Colonel, Reserve of Officers, R.E. In 1927 Colonel Hall joined the Southern Railway as Assistant Engineer (Signals & Telegraphs), and he was re-designated Signal Engineer in 1944. Cremation took



The late Lt.-Colonel G. L. Hall

Assistant Engineer (Signals & Telegraphs),
Southern Railway, 1927-44; Signal
Engineer, 1944-47

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place privately, and a memorial service was held on January 23 at St. Jude's, Courtfield Gardens, London, S.W.5.

Mr. S. L. Glenn, M.I.R.S.E., has retired from the position of Commercial Engineer, Metropolitan-Vickers-GRS., Limited. Mr. L. A. D. Chir, A.M.I.E.E., M.I.R.S.E., has been appointed Commercial Engineer. Mr. Chir joined the company from the London Underground Railways in 1929, and, after studying American signalling practice with the General Railway Signal Company in Rochester, New York, became the Representative of Metropolitan-Vickers-GRS. Limited, first in South Africa, and subsequently in South America and India.

We regret to record the death, on January 17, at the age of 86, of the Rt. Hon. Lord Southborough, G.C.B., G.C.M.G., G.C.V.O., K.C.S.I., a Director (and Chairman, 1931-43) of the Westinghouse Brake & Signal Co. Ltd., a former Chairman of Sir W. G. Armstrong, Whitworth & Co. Ltd., and formerly a Director of the Underground Electric Railways Co. of London, Ltd., and other companies. He was Secretary of the Railway Department, Board of Trade, 1893-1901, and was British delegate to the International Railway Congress held in London in 1895 and Paris in 1900. He was a member of the Canals & Waterways Commission of 1906.

Mr. H. N. Greenleaf has been appointed Assistant Editor of the *Southern Railway Magazine*. He has had 30 years experience of railway work, having started in the Secretary's Office of the L.C.D.R. in 1916. For the last 19 years he has been in the Southern Railway Advertising Department at Waterloo. He is part author of "British Railways" and other railway books.

DINNER TO MR. VICTOR WATLINGTON
Mr. Victor Watlington was entertained recently at dinner at the Savoy Hotel, London, by the Vice-Presidents and Council of the British Electrical & Allied Manufacturers' Association, on the occasion of his retirement from the Directorship of the Association; Mr. E. C. Holroyde, Chairman, presided. There were also present:—

Mr. H. G. Allen, Sir George Bailey, Messrs. R. Berry, H. W. Bosworth, D. Maxwell Buist, I. R. Cox, D. Z. and V. Z. de Ferranti, Sir Claude Gibb, Mr. W. W. Hughes, Sir Montagu Hughman, Messrs. S. C. Hurry, J. O. Knowles, G. R. Lee, Colonel B. H. Leeson, Messrs. T. F. Lister, A. Glynne Lobley, W. d'A. Madden, Sir Holberry Mensforth, Mr. H. E. Midgley, Major Stanley M. Mohr, Mr. L. E. Mold, Lt.-Colonel R. K. Morcom, Sir George Nelson, Mr. A. G. O'Neill, Sir Harry Railing, Mr. J. S. Ramsden, the Hon. J. R. Rea, Messrs. J. W. Rodger, J. M. Sinclair, L. W. Smith, H. Taylor, J. B. Tucker, D. D. Walker, G. Wansbrough, W. W. Watt, Allen West, R. S. Wright.

The Council of the Institution of Railway Signal Engineers has made the following nominations in connection with vacancies to occur in March, 1947:—President, Mr. F. L. Castle (General Manager, Siemens & General Electric Railway Signal Co. Ltd.); Vice-President, Mr. R. Dell (Signal Engineer, L.P.T.B.) (Mr. A. Moss, Assistant to Engineer (Signals), Southern Area, L.N.E.R., will become the senior Vice-President); ordinary Members of Council, selected from Members, Messrs. T. Austin, E. G. Brentnall, C. G. Derbyshire, T. Guest, J. C. Kubale, P. Lomas, and, selected from Associate Members, Messrs. W. J. Howes, F. Mann, N. Marshall, W. W. Owen. The annual general meeting, at which the re-

sults of the ballot will be made known, is to be held in London on March 18. Messrs. W. H. Chalis, J. H. Fraser, F. Horler, C. F. D. Venning, S. Williams, W. J. Claridge, A. L. Mills and R. A. Powell remain in office as Members of Council.

Mr. H. S. Milligan, General Manager of the Railway Passengers Assurance Company (and other companies in the "North British & Mercantile" Group) has retired, and is succeeded by Sir Thomas Frazer, F.F.A., whose knighthood was announced in the New Year Honours List.

BRITISH INSTITUTE OF MANAGEMENT

The following have agreed, at the request of the President of the Board of Trade, to serve on the first Council of the British Institute of Management, under the Chairmanship of Mr. C. G. Renold: Mr. Robert Appleby (Works Manager, Ascot Gas Water Heaters Limited), Sir Clive Baillieu (Deputy-Chairman, Dunlop Rubber Co. Ltd.), Sir Charles Bartlett (Managing Director, Vauxhall Motors Limited), Mr. W. B. D. Brown (Managing Director, Glacier Metal Co. Ltd.), Mr. C. Cheliotti (Director, General Electric Co. Ltd.), Mr. Roland Dunkerly (Managing Director, Vantona Textiles Limited), Mr. B. R. Farr (General Manager, Chivers & Sons Ltd.), Mr. T. H. Gill (Director, Co-operative Wholesale Society Limited), Miss Caroline Haslett (Director, Electrical Association for Women), Mr. A. M. Holbein (Director & Chief Engineer, Demolition & Construction Co. Ltd.), Sir Archibald McKinstry (Deputy Chairman, Babcock & Wilcox Limited), Mr. J. E. Myers (Principal, Municipal College of Technology, Manchester), Lord Piercy (Chairman, Industrial & Commercial Finance Corporation Limited), Mr. C. N. Potter (Works Manager, Ilford Limited), Mr. T. G. Rose (Industrial Consultant), Mr. O. W. Roskill (Industrial Consultant), Mr. H. C. Rutherford (Director, Venesta Limited), Mr. John Ryan (Vice-Chairman, Metal Box Co. Ltd.), Sir George Schuster (Director, Commercial Union Assurance Co. Ltd.; Director, Southern Railway Company), Mr. J. W. Stephenson (Director, British South Ameri-

can Airways Corporation Limited), Sir Raymond Street (Chairman, Cotton Board), Mr. M. H. Taylor (Managing Director, Taylor, Taylor & Hobson Limited), Colonel L. Urwick (Chairman, Urwick, Orr & Partners, Limited); Mr. Harold Whitehead (Deputy-Chairman, Jenson & Nicholson Limited), Mr. R. E. Yeasley (Hill, Vellacott & Company). The Representative Members are: Federation of British Industries, Sir Norman Kipping; Trades Union Congress, Lord Dukes; Civil Service, Mr. J. I. Crombie. Sir Archibald McKinstry and Colonel Urwick have consented to act as Vice-Chairmen.

BRIGADIER K. N. SIMNER—AN APPRECIATION

Brigadier Kenneth Simner, whose death, at the age of 48, was recorded briefly in *The Railway Gazette* of January 10, made a great contribution to the solution of transportation problems in the Middle East and the Persia and Iraq Commands during the recent war. He went to Cairo with twenty years' experience as an R.E. officer seconded to the Engineering Department of the N.W.R., India. In the critical years of the Middle East campaign he was responsible for the detailed preparation of plans for the Western Desert Railway and for the Haifa—Beirut—Tripoli line. In September, 1942, he went to Teheran as D.D.Tn., Persia, later moving to Baghdad as D.Tn., Paiforce, during his service in which he brought his considerable knowledge of transport management to bear on the varied problems set up by the aid-to-Russia traffic. Later he served as D.D.Tn. (O) at the War Office. Always friendly and approachable, Simner was respected by everyone serving under him for his keen application to the job in hand. It was impossible to know him without feeling affection for him.

R. M. R.

We regret to record the death, on January 17, at the age of 74, of Sir Edward Colpoys Midwinter, K.B.E., C.B., C.M.G., D.S.O., who was General Manager, Sudan Government Railways, 1906-25, and Controller, Sudan Government London Office, 1925-32.

Swedish Delegation to Study L.P.T.B. Railways



Mr. P. Croom-Johnson, Chief Engineer, L.P.T.B., pointing out on a map features of the London Underground system during the visit of a delegation from Stockholm, where construction is planned of an underground railway (see paragraph in our last week's issue). Left to right: Messrs. Helge Berglund, David Anger, P. Croom-Johnson, A. Gustavsson, G. Gyldenstein, and G. Lene

Railway Civil Engineering as a Career

(Concluded from page 100)

advice to young men in the railway service, and that is, to thirst after knowledge while they are young. This can largely be done by reading suitable literature, joining an Engineering Institution, taking part in debates and discussions, asking questions, or finding things out in many other ways. I know this takes time, but it is essential if success is to be assured.

Railway Civil Engineering

I propose now to deal in greater detail with railway civil engineering as a career with particular reference to engineering. For railway civil engineering is, in some respects, quite peculiar to railways, although in others it is similar to civil engineering of a general type. The matters peculiar to railways are, of course, the permanent way, signalling, and, to some extent, the design of bridges in that they slightly differ in design from road bridges.

Before looking in some detail into these matters, we shall find some interest in looking at the various constituents of railway civil engineering, and to do this, we should go back to the time when railways are proposed, schemed, planned, approved by Parliament, financed, constructed, and opened for traffic.

In order to arrive at the final position, a great deal of railway civil engineering work has to be undertaken, and in the following order:

(1) Surveying, levelling, and planning of the proposed route of the railway.

(2) Preparation of Parliamentary plans, sections, and estimates.

(3) Giving evidence on the Railway Bill before Parliament.

(4) Preparation of constructional plans of the new railway once Parliamentary Powers are obtained.

(5) Preparation of contracts for the construction of the new railway.

(6) Supervision of contracts for the construction of the new railway.

These matters require the services of surveyors, draughtsmen, designers of permanent way, signalling and communication facilities, bridges, buildings, locomotive sheds, stations, and the services of quantity surveyors and resident engineers. These constituents together form what we in the railway service call the New Works Office.

The New Works Engineer

The design, construction, and maintenance of railway civil engineering works are essentially closely interwoven, and rightly so. A system of standardisation is essential. The New Works Engineer should not design without the views of the Maintenance Engineer being incorporated in the design, and the Signal Engineer should consult the Maintenance Engineer as to the most suitable positions for his cable runs and other essential equipment, particularly important on an electrified line. The Chief Engineer controls and knits these various deliberations.

A young man who enters the railway service in the Civil Engineering Department, who is not allowed to specialise too drastically in any one section, and who assiduously works for, and obtains, an engineering degree and subsequently his corporate membership of the Institution of Civil Engineers, stands an excellent chance of reaching the higher engineering positions. Young men must be prepared without question to move from section to section, though it involves, at times, a move of house and belongings and other personal inconveniences.

The ideal training for a young railway

civil engineer, after he joins the service, can be defined by saying that adequate experience should be gained in the design, construction, and maintenance of permanent way, bridges, and buildings, estimating and quantity surveying, in the production of shops and manufacturing depots, and that he should acquire a fully detailed grasp of the work of at least one section.

Training in track maintenance by attachment to a working gang is valuable as giving, not only practical experience of the work, but experience in men and the conditions under which they work. A period of attachment to a Permanent Way or Works Inspector for six months is invaluable training, and I would endeavour to arrange, if possible, for some young engineers to obtain practical training and experience with a firm of civil engineering contractors. An exchange of views is always useful experience.

Those intending to take up civil engineering as a career would do well to read a pamphlet issued by the Institution of

Civil Engineers in 1945. This sets down in detail the training required, experience to be obtained, and positions which are open from time to time. One chapter of this pamphlet deals exclusively with the railways.

A Valuable Asset

What part does the Permanent Way Institution play in this great scheme which we have been considering. Our Institution is recognised by the railways in a great many countries of the world as being the most valuable asset, providing a means of furthering interest in railway work and undertaking the education and training of men in the railway service, particularly in the permanent way grades.

There are, at the present time, approximately 4,700 Fellows, Associate Fellows, Members, Associate Members, and Students in the ranks of the Permanent Way Institution, and there is no doubt that this Institution will continue to increase and develop.

Locomotive Availability

(Concluded from page 99)

until the result of the next year's competition are available.

Repairs to hot bearings are costly, and are objectionable because they are not in the category of a repair to maintain the engine in an efficient condition, but are an obligation due either to weaknesses in design or failure to maintain a supply of oil, or to keep dirt away from the journal.

On the L.M.S.R., hot boxes are confined for all practical purposes to older locomotive types, in which the bearing surface is small in relation to the weight and power of the engines. Since it is impracticable to re-design the engines to give greater bearing surface, a special blend of oil, known as "W" oil, was introduced in 1943, consisting of 85 per cent. bright mineral oil and 15 per cent. rape. Since "W" oil was introduced, there has been a marked decrease in hot axles. Examples of the reduction in the number of hot axles encountered are—

	1942	1943	1944	1945
190 Class "6F" (L.N.W.R. class "G1") 0-8-0 locomotives ...	272	197	132	70
330 Class "7F" (L.N.W.R. class "G2") 0-8-0 locomotives ...	433	313	252	141

It is important that, after repairs for hot axles, the locomotive would be weighed, and, if necessary, the weight should be adjusted.

Wheel drops are satisfactory if only one pair of wheels has to be removed, but it is a slow and laborious method when used in connection with the reconditioning of all the axleboxes of a locomotive. It is not now the practice on the L.M.S.R. for the work of reconditioning axleboxes, side rods, motion, and so on, which normally would form part of a service repair, to be carried out in running sheds; such work is always done in the workshops of the Chief Mechanical Engineer's Department.

It is noticeable that fitters and other artisan staff unused to running shed work take time to acquire the necessary skill, initiative, and confidence. The L.M.S.R., therefore, recently has introduced a special apprenticeship training scheme adapted to motive power needs. Suitable members of the staff trained under this scheme will be considered for promotion in the future to positions of responsibility.

Locomotives awaiting material call for the careful attention of all concerned—the motive power staff, the Chief Mechanical Engineer's Department, the Stores Department, the Traffic Department, and outside contractors. Material for repair in C.M.E. shops is got away as early as possible, "green arrow" labels being used on wagons containing items urgently needed. Full use is made of road vehicles, wherever practicable, for conveying items for short distances; and "fitted" wagons are used on certain passenger trains for conveyance of wheels sent by rail. Repair notes sent to resident storekeepers from motive power depots are put in envelopes marked "Repair note, urgent." Prompt transfer of material from the depots by the transport service to the works, and also back to the job on return from the works, is a matter demanding attention; doubtless, local conditions call for still further steps, and everything must be done to keep the number of "engines waiting material" to the lowest possible level.

TUBE INVESTMENTS LIMITED.—Mr. I. A. R. Stedeford, Chairman & Managing Director, speaking at the annual general meeting of Tube Investments Limited recently, after dealing with the accounts for the year and outlining proposed plans for developing the electrical, light alloy, and precision tube activities of the group, said that none of the nationalisation schemes of the Government, so far as they had been made known, were likely to affect any of the companies in the Tube Investment Group otherwise than as important customers of most of the industries concerned. As such, they naturally watched these developments with interest, in view of their likely influence on such vital trading factors as production costs. The really important point was that nationalisation could only be a means to an end. It was on our industrial strength that the future prosperity of our country must depend, and it was a simple fact that this would always be in direct ratio to production costs and the volume and quantity of our output. It was on these mundane, but basic, factors that all hopes rested for full employment and a better life for everybody, and we would surely rue the day should other considerations be permitted to override them.

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Ministry of Transport: Accident Report

Edgware, L.P.T.B. : July 27, 1946

Lt.-Colonel Sir Alan Mount, Chief Inspecting Officer of Railways, inquired into the accident which occurred at the Edgware terminus of the Northern Line, L.P.T.B., at about 9.52 p.m. on July 27, 1946.

Train No. 10, of 7 cars of 1938 tube type, weighing nearly 177 tons unloaded, failed to stop in No. 2 platform, ran through a 20-ft. sand-drag, and collided with the buffer stops and a concrete abutment wall. The driver's cab was crushed in, and the motorman pinned from the waist downwards and by the left foot, acetylene cutting plant having to be used to release him. He died of coronary thrombosis, and at the inquest, where a verdict of death from natural causes was returned, the pathologist informed the coroner that his injuries were of a minor character and did not contribute to his death, which meant that the collision occurred while he was dying.

He had applied the brake approaching the station, and his last semi-conscious act may have been to release it and the dead man's control under the erroneous impression that the train had become stationary, when it was still moving at 12 to 15 m.p.h. two-thirds along the platform. He was 42, had been with the Board since 1928, and bore an exemplary character. He was passed fit after medical examination on February 6, 1946. Of approximately 100 passengers in the train, 8 complained of minor injuries or shock; 3 of these received hospital treatment, but were not detained.

CIRCUMSTANCES OF THE CASE

The train was fitted with self-lapping electro-pneumatic and normal quick-acting Westinghouse brakes, using the same brake cylinders. The former has an audible warning in the event of failure to brake electro-pneumatically; the quick-acting brake is immediately available for service or emergency application. The traction controller has the well-known key control for bringing it into operation, and the customary interlocking between power and reverser barrels; the key of the latter is removable only in mid-position with controller handle necessarily at "off." The dead man's control consists of vertical movement of the main control handle, with 6 lb. pressure to depress and 3½ lb. to hold down. After a train stops at a terminus, the motorman has to go through certain routine movements connected with the controller and brake isolating cock before changing ends, and he also deals with head and tail light switches, etc.

It was considered that the train may have entered the sand drag at 15 to 20 m.p.h. and hit the buffers and wall at 5 to 7 m.p.h. Its running previously had been quite normal and no signs of skidding were found. It had been in service all day without trouble. A motorman travelling as a passenger said that speed was reduced normally near the home signal, but when two-thirds of the platform had been traversed "it felt as if the brakes had left the train; it simply carried on." His own guard travelling with him confirmed this. The train guard said that the brakes previously had been operating satisfactorily, but on opening his door he realised he was passing instead of stopping in front of the signal box as usual. The signalman, who took commendably

prompt emergency action, confirmed this.

The stationmaster, who also acted promptly in summoning assistance, found that the driver was pinned, but could feel his pulse and thought he was alive. The N.F.S. then was sent for. A doctor, who was a passenger and left the scene when another arrived, appeared to think the same.

In the efforts made to get at the motorman, several persons looked into the cab compartment, and, finally, one contrived to get in. Various opinions were expressed later regarding the exact condition of affairs, including the position of the driver's arms, the spring seat, and the brake and control handles. The Board's own doctor felt that it was impossible to say what had happened to the driver or what he had done immediately before the crash, but marks on the controller casing suggested that he must have been seated at the time of it. A guard, apparently the first person to see him, noticed that the brake handle was at emergency, but neither he nor anyone else at first noticed the reversing key.

The Assistant District Traffic Superintendent, who did not notice the brake handle, thought the man was in "a perfectly normal driving position" and that "the driver had leaned forward sufficiently far to put the brake handle off, and the train had stopped without brakes being put on." The emergency position of the handle, he thought, had been produced by efforts to get the man out. The Breakdown Engineer also thought the driver was seated at the time of the collision. Trying to see the best place to cut the paneling, he noticed the reversing key resting on the number plate frame inside the door, the first time, apparently, that anyone in a responsible position had observed where it was.

He was satisfied that the key could have been withdrawn from the controller only before the collision, and thought the brake handle might have been forced into the emergency position "as a result of the impact of the driver's body on the controller." He did not think the handle could have been moved while removing the body. There was considerable discussion during this evidence as to why the train had not been stopped, if the handle was in this position, and the Chief Mechanical Engineer thought it more probable that "it was put there by the driver in his last gasp than that his body was pushed into it."

The Sectional Controller isolated the damaged leading car and conducted brake tests on the remainder. A fuse in the leading car had been blown from damage done to wiring in the collision, but when normal conditions were restored on the six vehicles, all brakes were found to be in proper order. The question arose whether this fuse and another found failed in the rear car had blown before the collision. Had the front fuse blown, the motorman would have had an audible warning, but it is clear that everything was in order when the train passed the home signal; if the rear fuse had blown it would not have affected operation of the brake from the front end. The circumstances are best illustrated in the Chief Mechanical Engineer's words: "Almost nothing is impossible, but there are some probabilities

which are so remote as to be in that neighbourhood. I would find it very hard to believe that an earth developed between a known good condition and an obvious bad condition." A test showed the brake controller to be in good order.

A significant fact came to light when the apparatus was examined later at Golders Green. The headlight push-button switch was found to be off and the tail-light switch on. Their box was intact and the collision itself could hardly have operated both at right angles to the line of impact.

CHIEF INSPECTING OFFICER'S CONCLUSION

The motorman succumbed to a heart attack, yet the dead man's control failed to operate. Sir Alan Mount's inquiry, therefore, was held to investigate this, but no full and reliable explanation could be given. Evidence was mainly circumstantial. Circumstances made it easy for handles to be moved and difficult for witnesses to recollect their positions at any relevant time, apart from the fact that some could not even see them. The unusual positions of the handles might have been brought about by the convulsive effect of the motorman's heart attack.

It should be noted that the Board has no record of the dead man's handle having operated (for the purpose for which it was provided) in the case of a man collapsing while his train was in motion in passenger service. In the last 30 years there have been only two such cases on the system, and they occurred when a train was stationary at a platform and the controller was off. Should exceptional conditions, such as those at Edgware, be repeated on a running line, collision would be prevented by the automatic stop.

Sir Alan Mount found no grounds for believing that there was the least defect in the equipment of the train. He considered several possible explanations of the course of events. There seemed no reason to believe that the driver had fallen on the dead man's handle and kept it depressed. He appeared to have been seated before the impact, although, had he been aware that something serious was about to happen, his first act would have been to jump up and endeavour to reach the door to the passenger compartment. Apparently, his application of the brake at the home signal was his last conscious act.

How did it come about, however, that the brake was released in the platform, and why, if the man did not fall on the handle, did not the brake function instantly and at least stop the train before the wall was hit? Presumably, the handle had been rendered inoperative by the reversing key having been pulled towards him. There is no evidence to show that he cut it out, nor does the fact that it was so found prove that he centred it, knowingly or otherwise. On the contrary, his attack—which would have caused severe pain—might have brought about such a convulsive condition that he bore down on the handle and held it tighter, while pushing the brake handle to release, and thus the train ran on.

There is no evidence to show whether release of the brake was voluntary or not. The motorman may have released, intending to re-apply, but his failure to re-apply in time was certainly involuntary. It seems confirmed conclusively that at some point near the sand drag he was unable to control his actions. When the seizure occurred, in falling forward he may have pushed the brake handle, and when partially overcome, pulled it round to the

emergency position. The position of the reversing key might be accounted for by his endeavouring to reverse the motors, a most infrequent action. This is pure conjecture, and the position of either handle may have been caused by someone moving him—say, because of his coat catching in it—although one account contradicted this theory.

Another possibility is that he imagined that the train had come to a stand and began automatically to carry out the duties of "closing down." It appears that he already had operated the head and tail light switches. After releasing the brake, he may have pulled the reversing key towards him and transferred it to his right hand, intending to bend down and close the isolating cock. Before he could do so, the collision knocked the key from that hand, the left hand having pulled the brake handle to emergency before returning it to off, as procedure would call for.

Whatever happened, the dead man's action must have been neutralised by the movement of the reversing key. Sir Alan does not think that the position of the deceased's body was such that it would have interfered with this action. He does not consider, moreover, that the driver would have cut out the arrangement prematurely, a procedure against both custom and rule which no experienced and careful driver would adopt approaching a sand drag and a brick wall. He concludes that the driver was more likely to have been acting as if he were "closing down." In other words, he carried out his duty to the end, and to the best of his ability, until no longer capable of voluntary action.

REMARKS

Medical evidence emphasised the difficulty of diagnosing coronary thrombosis, particularly in so young a man, if he makes no complaint, for instance, that pain is experienced when exercise is taken.

Nothing abnormal was detected when the motorman was examined in February, 1946, and this is not inconsistent with the symptoms in this case. The Board's medical officer said that if a man "makes no complaint he may not have any pain. It does not follow he would have any pain. He may not know anything about it himself and will consider himself a perfectly fit man. . . In most cases where there is a history, one relies on the history given by the patient. . . No one knows the cause. It is sometimes liable to appear in certain families."

Discussion had been going on with other railway medical officers relating to quinquennial examination of footplate staff. This might eliminate some cases of seizure on duty, but not necessarily in this type of case. There is, in fact, not much hope that such procedure would have material preventive effect. Nevertheless, apart from eyesight tests, it is desirable, in addition to the general test carried out on promotion, after lengthy illness, and on reaching the age of 60.

Sir Alan has no doubt that this proposal will receive full consideration, and thinks that, on general grounds, all footplate staff should be medically examined at regular intervals.

During his inquiry, the lengths of platform and sand drag, and the proximity of the head wall were commented on. The drag on No. 2 platform, which is 370 ft. long, is 20 ft., compared with 24 ft. in No. 3. A 7-car train is 367 ft. long. When the line is extended it will allow the platform to be lengthened.

Permanent Way Institution Annual Meeting and Dinner

Mr. G. R. Strauss, Parliamentary Secretary, Ministry of Transport, on folly of early drastic administrative changes under nationalisation

The sixty-third annual winter general meeting of the Permanent Way Institution was held at the Institution of Civil Engineers, London, S.W., on January 18, with the President, Mr. V. A. M. Robertson, C.B.E., M.C., in the Chair. A large attendance of members included the President-Elect, Mr. J. C. L. Train, M.C., and three Past-Presidents. Messrs. Arthur R. Cooper, F. E. Harrison, O.B.E., and W. K. Wallace, C.B.E.

In reporting on the Institution's activities during the past year, the Secretary (Mr. H. Janes) said it was evident that permanent way men were realising the educational and social benefits derived from membership of the Institution. The President, during his term of office, had visited all Sections in Great Britain, some several times. These visits had been largely the reason for increased interest in the Institution and consequent enrolment of many members. During the past year 568 had been elected, and of this number 475 were from home railways, namely, L.M.S.R., 183; L.N.E.R., 109; Southern, 85; G.W.R., 78; L.P.T.B., 20. New members from India totalled 69.

With the assistance of the interest of Mr. T. R. Leonard, Chief Engineer, Irish Transport Company, it had been agreed to form an Irish Section, and active preparation was in hand for recruitment of members.

Three *Journals* had been prepared during the year under the editorship of Mr. John Ratter, C.B.E., but because of his recent appointment as Civil Engineer (Maintenance) London Transport, he felt that his new duties would preclude undertaking the editorial work in future, and he had requested the Council to accept his resignation.

To assist in the smooth working of Institution affairs two committees had been appointed: (a) General Purposes, (b) Membership & Finance; and these would operate forthwith.

The year 1946 saw the resumption of the summer convention which was held at Nottingham in July last. For this year it had been decided to visit Scotland, from July 5 to 10 inclusive.

The Treasurer (Mr. F. Lawson) reported that because of rising costs, especially in printing and stationery, the financial position would need careful watching. The balance in hand was £3,968 and the membership stood at the record figure of 4,635.

ELECTION OF NEW PRESIDENT

Mr. V. A. M. Robertson then moved the election of Mr. J. C. L. Train, M.C., Chief Engineer, L.N.E.R., as President for 1947. Mr. Train had been a member of the Institution for many years and was known throughout the railway world as an eminent engineer. The election was agreed with acclamation.

Vice-Presidents were then elected as follows:—England, Mr. B. Lloyd Davies, J.P.; Scotland, Mr. W. Paterson; Wales, Mr. M. A. Henry; Ireland, Mr. Neil C. Cain; India, Mr. H. E. Thompson; Sudan, Mr. W. L. Harwood. The officers elected were: Secretary, Mr. H. Janes; Treasurer, Mr. F. Lawson; Assistant Treasurer, Mr. E. Bywater; Editor, Mr. H. Ormiston.

Mr. Robertson then vacated the Chair in favour of the new President, and after

the completion of routine business an address entitled "Railway Civil Engineering as a Career" was delivered by Mr. Robertson (see page 100). In thanking the speaker, Mr. Wallace said the address to which they had just listened was extremely well balanced. It gave a good idea of a railway department which the public knew least about.

THE ANNUAL DINNER

The annual dinner was later held at the Abercorn Rooms, Liverpool Street, when the President (Mr. J. C. L. Train, M.C.) occupied the Chair. Mr. G. R. Strauss, M.P., Parliamentary Secretary, Ministry of Transport, was the principal guest. Among others present were:—

Messrs. G. B. Barton, D. R. Bennett, O.B.E., A. H. Cantrell, C. J. Chaplin, M.B.E., F. H. Colebrook, Arthur R. Cooper, B. Lloyd Davies, J.P., A. Dean, W. G. Dunstan, C. E. Dunton, B. P. Fletcher, M.B.E., S. L. Furnivall, H. J. Green, O.B.E., F. E. Harrison, O.B.E. (Past President), E. G. Horton, Sir Cyril Hurcomb, G.C.B., K.B.E., Messrs. J. A. Kay (Editor, *The Railway Gazette*), C. F. Klapper (*Modern Transport*), K. C. Marrian, Sir Ronald W. Matthews, Major R. F. Morrell, M.C., Sir Charles H. Newton, Messrs. J. N. Peck, O.B.E., A. S. Quartermaine, C.B.E., J. Ratter, C.B.E., R. A. Riddels, H. E. Roberts, V. A. M. Robertson, C.B.E. (Past President), J. Taylor Thompson, E. Viner Brady, O.B.E., W. K. Wallace, C.B.E. (Past President).

The toast of the Permanent Way Institution was given by Mr. G. R. Strauss, M.P., who said he felt honoured indeed when he was invited to that annual winter dinner. Transport was the most important industry in the country, and the most important section was the railways, and the most important element in the railway system were the railway engineers. They all thoroughly agreed on that. They also agreed that the Permanent Way Institution was an exceedingly valuable one. It had rendered great service in the past to the railways and had a record of which to be proud.

They had had many distinguished engineers as Presidents and were keeping up the record by having Mr. Train at their head. His high reputation and ability were recognised by everyone. The Institution was gaining rapidly in numbers and he hoped it would soon be possible to return to the custom of visits to fellow railway technicians abroad. Where people of one country, especially technical people, were able to discuss their problems with colleagues of another country, it was all to the good.

Referring to the Transport Bill, he said that some words used by the Chancellor of the Exchequer in the course of the debate on the second reading had been misinterpreted to reflect adversely on the competence of the technical staff of our railways. The Chancellor had never said anything of the sort. Indeed, Mr. Strauss went on, he would like to repeat the high praise which he had expressed during his speech on that occasion of the outstanding ability and devotion of railway technicians and to pay tribute to their extraordinary achievements during the war.

Some, who were not hostile to the Government's general objective of bringing about the unification of inland transport under public ownership, had complained that its operational aim had not

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been stated with sufficient clarity or precision.

It is impossible to state its operational claims in any detail, but it might help some of those who had expressed their anxiety on this score if he recapitulated in a few sentences the principles the Government had in mind.

It wanted to ensure that for each transport purpose that form of service should be used and developed which was technically and economically the most efficient. This could be assured only by the integration of the various transport services. So far, the benefits of integration could not be achieved, because the ownership of the various services were in many different hands and the separate financial interests were naturally more concerned with securing the best possible return on their own capital than with any pooling of resources or co-ordination of services.

SCOPE FOR TECHNICAL IMPROVEMENTS

Neither the ownership by the railways of 50 per cent. of many passenger road transport undertakings nor the powers of the Traffic Commissioners had effected by any means all that could be achieved. Moreover, capital for development and modernisation of equipment often had not been made available unless a quick and good return could be clearly foreseen. An important part of the Government's operational aim, therefore, would be to give all possible scope for technical improvements, and those developments which without integration were unlikely to come about.

There were other critics who were favourable to the general purpose, but considered that the organisation proposed would have been better if it had been on a regional rather than a functional basis.

This alternative was at first sight attractive and was most carefully considered. But when one considered this problem carefully, at the outset it would be wholly impracticable to re-organise the whole transport system of the country on a regional basis. It would mean chopping up immediately into geographical sections the existing railway and canal systems as well as the long distance road services.

The dislocation that would ensue would be appalling. Another unfortunate, but inevitable result would be to transfer the whole direction and management of our transport services to the railways, as these were predominant in size. This would be contrary to the whole principle of integration.

De-centralisation of many of the functions of the transport services would certainly take place, and it might well be, although he could in no way commit the Transport Commission, that a full-scale regional organisation eventually would be developed.

"It will, of course, be the constant responsibility of the Commission to see that the organisation of each of its executives is properly related to that of the others, and that thorough co-ordination and integration of the services involved will be effected. It is intended that between the commercial sides of the various executives there should be the closest tie-up, not only at headquarters, but at all local and regional levels. If we had laid down in the Bill a regional organisation for the commencing stages of our national transport services we would not only have been faced with obvious and insuperable difficulties, but we would have set up by Act of Parliament static features into the scheme where by its very nature elasticity is essential.

"We are anxious that the change of ownership of all the transport services and the setting up of the new administrative machinery, should take place with the minimum dislocation. It would therefore be folly to try and effect any drastic and fundamental administrative changes on the taking over day. We must see to it that pending the realisation of the full benefits of integration which must take some years to fructify freely, neither industrialists, farmers, or the general public should at any stage in the process of transference, suffer any inconvenience. When we are dealing with the intricate organisation of a service as important to our national welfare as transport it is far better to proceed step by step and be certain, rather than attempt too much too quickly," said Mr. Strauss.

He would like to make some comments of railway operation to which the name of the Institution referred, namely, the permanent way. The permanent way was the basic capital equipment of a railway system. It suffered through the war years; it was impossible to maintain and renew it to peace-time standards. The permanent way of our railways was acutely affected by lack of two materials, timber and steel, which were in short supply.

Before the war the railways used 4½ million sleepers a year. During the war the average had to be reduced to just under 3 millions, and by 1946 arrears of nearly 10 million sleepers had accumulated. To wipe off these arrears an additional two millions would be required each year for five years, making roughly six millions wanted each year. With the timber situation as it was, there was not the slightest chance of carrying out such a programme. Before the war the railways maintained a stock of three to four million sleepers, but today stocks had fallen to the dangerously low figure of half a million.

SUBSTITUTE FOR THE WOODEN SLEEPER

There had been much research to find a suitable substitute for the wooden sleeper. But at the present time, with steel and cast iron ruled out, concrete was the only practical alternative. Only one type of concrete sleeper so far had proved capable of standing up to heavy main-line traffic. That was the pre-stressed sleeper.

There were, however, limitations to the use of all forms of concrete sleepers, as up to now they had proved to be unsuitable for track circuited sections and there were objections to their use on electrified lines. Everything, however, was being done to go forward with the production of concrete sleepers, which was being planned to start in a number of new factories. Moreover, their production was being stepped up to a target figure of a million a year, but nothing like this possibly could be produced in 1947.

Supplies of new rails are also likely to fall short of requirements. Before the war the average yearly intake was 211 thousand tons and during the war this was reduced to 157 thousand, so that a substantial deficit has accumulated. But today, owing to the exceptionally heavy demands for steel for home and export use, and the lack of imports from the United States, it has been estimated that there will be an over-all shortage of supplies compared to demands amounting to 4 million tons in the first quarter of 1947 alone. It is therefore evident that it will be as impossible this year to meet the steel needs of the permanent way as to meet its timber needs.

The total supplies of all types of

sleepers available during the present year would fall far short of the number required for the maintenance and making good of arrears, and it might be necessary to restrict speeds, as safety had to come first.

Mr. W. K. Wallace, C.B.E., proposed the toast of the President. He remarked that they all knew Mr. Train both in an official and personal capacity. He was trained on the North British Railway, and was very popular with his fellow engineers. He was always willing to try anything new, keen on research and willing to share information.

Mr. Train, in responding, first thanked the Parliamentary Secretary for his remarks regarding the Institution. In thanking Mr. Wallace, the President said he realised the arduous task he had undertaken, but he would do his utmost to further the affairs of the P.W.I.

Mr. A. S. Quartermaine gave the toast of the Past-President, and said that Mr. Robertson had carried out the duties of President for four years. During that time as Chief Civil Engineer to the Southern Railway he had much to contend with in the way of damage by enemy activity, but in spite of this he took on the Presidency of the Institution.

Mr. Robertson thanked Mr. Quartermaine and said that just four years ago Mr. Harrison had said: "Will you take on the job for a year and for the first year of peace?" He agreed and then found himself in the job for a period of four years, but they have been four of the happiest years of his life. The administration of an Institution of some 4,700 members as a spare-time job was a huge undertaking, and much work had devolved on the Secretary and Treasurer, Messrs. Janes and Lawson.

Mr. F. E. Harrison proposed the toast of the Guests and coupled with it the name of Sir Ronald Matthews, Chairman of the L.N.E.R. Mr. Harrison said that was the first time they had been honoured with the presence of the Parliamentary Secretary of the Ministry of Transport, and with him Sir Cyril Hurcomb. Then there was Mr. Riddles, an eminent engineer and Vice-President of the L.M.S.R. Sir Charles Newton, Chief General Manager, L.N.E.R., and members of the technical Press, their friends Mr. J. A. Kay and Mr. Klapper.

Sir Ronald Matthews, who responded on behalf of the guests, thanked the Parliamentary Secretary for his words of praise of railwaymen and said it was essential that the public should note the difference to the reported words of the Chancellor of the Exchequer, and he hoped the widest publicity would be given to Mr. Strauss's remarks. He welcomed the opportunity to add his word of congratulation to his friend and colleague, Mr. Train, on the honour the Institution had paid in placing him in the chair.

He didn't believe even today the public of this country had realised fully the debt of gratitude it owed to the railway engineers and their staffs for the way in which they had kept their tracks through the war years. It was nothing short of miraculous how the permanent way men had done speedy jobs after enemy damage, generally making it possible for the vital business of making the wheels go round. He did not agree with everything Mr. Strauss had said, but he did agree most heartily that the work of this Institution and the work of the engineering staffs generally must go on and must go forward, ensuring vigilance, and determination by research and experiment to make what is already good even better.

Parliamentary Notes

Railway Transport and the Coal Shortage

Mr. Evelyn Walkden (Doncaster—Lab.) on the motion for adjournment of the House of Commons for the Christmas recess on December 20, raised the shortage of coal trucks and the coal shortage.

The shortage of coal and of coal trucks and wagons had been raised by him in 1944, with the Coalition Government. He had raised the questions of timber and other materials used in wagon repairs and of the nature of the repairs. He was not unmindful of the excellent work done in railway workshops throughout the war.

In 1944, very little had been done, except, he believed, on the question of railway wagons. An attempt had been made to fashion an austerity scheme for repairs. In 1944 and 1945, he had put questions to the Minister of War Transport concerning the serious number of engines laid up. He regretted to say that thousands of those engines were still laid up.

TRAINING OF YOUNG ENGINEERS

He had suggested that young engineers be trained for the repair of locomotives and to do all the jobs required to put Britain's transport in the premier position in the world. He had suggested to the Minister that, if they could train young engineers for the R.A.F. to become highly efficient, it was not asking much of the trade unions, nor of the different industries, to accept or encourage young men to go as engineers, fitters, and boiler makers, so that in a similar period they could train a sufficient number to be able to repair the engines and rolling stock which would be required after the war.

No such training system was in operation today. It was true that some were being repaired, but one-seventh of the wagons in Britain, and also almost one-seventh of the privately-owned wagons, were out of commission. One-fifth of the locomotives of the railways of Britain were awaiting repair. Could they tolerate such a situation, whether the railways were State or privately owned? At Doncaster, where over 6,000 persons were employed, almost one-quarter of its engines were awaiting repair. He believed that at Doncaster alone they had 400 locomotives, many of which had never had a wheel turning for two or three years. The people concerned had been making representations, either for labour or material, because they recognised the urgency.

Many of his friends were equally puzzled by the figures announced in recent months on the export of railway engines. He knew the Minister could say: "We must export. The figures were presented to you." But they had not given the actual figures of railway engines which we had been, and were still, exporting.

Evidence had been presented by manufacturers that embargoes had been placed on Doncaster goods going abroad because the railways had said they could not handle the goods. Yet we were making engines in the same area and sending them abroad. Not far from London, there was an enormous number of good-looking engines standing idle. Why were those engines not put into running order? The Minister might say they had not been produced in Britain, that spare parts were missing, or there were odds and ends which could not be provided here in our factories.

It was singular that, when he had been in France a few weeks ago, he had been assured by one of the French engineers who dealt with the same type of engine

that, despite difficulties, they were using practically every one of their engines. Where they were getting the spare parts he knew not, but they were using the engines.

WAGON SHORTAGE

Managers and colliery officials were disturbed by the nightmare of wagon shortage. If we were losing 10,000 tons of coal a week due to wagon shortage at the pits, it was serious. The men at the coal face were disturbed. The locomotive drivers, particularly on the L.N.E.R. and L.M.S.R., were saying: "Do not blame us. We ask you to believe that we are doing our best." He believed they were. The drivers were troubled by the fact that there were tens of thousands of wagons stocked with coal, lying in sidings up and down the country. As he travelled from Kings Cross to Doncaster he saw wagons he knew had been lying there week after week. He knew the Minister might say they had not the manpower to empty the wagons, and to reload them when they needed the coal. No one seemed to have suggested that they could use two- and three-ton mechanical shovels to reload the coal. It would be better to dump the coal near the towns where they might, or were certain to, require it, and get the wagons back to the mines, rather than that there be a stoppage at the pits.

GOVERNMENT CRITICISED

Lieutenant William Shepherd (Bucklow—C.) said the failure of the Government to realise the need for dealing with the shortage of wagons was one of the prime examples of its incompetence. The Ministry of Supply and Board of Trade had done little or nothing to provide the railway workshops or wagon repair shops with adequate materials. Nothing had been done to help at present, when two-and-a-half times the normal amount of wagons were under repair. Even more to be accused was the Minister of Transport, because he was really responsible for the present inability to distribute coal as it should be. They had known three or four months ago that the existing shortage of locomotives on the L.N.E.R. and other railways would become serious during the winter, but the Minister of Transport, who had control of the railways, and had had control during the whole war, had allowed a programme of increased passenger services to be put into operation. If the Government was controlling the railways, it should control them and accept responsibility, and it should not have allowed the enhanced passenger service to be put into operation when it knew it would mean breaking down the distribution of coal and other essential products.

MINISTER'S REPLY

Mr. Alfred Barnes (Minister of Transport) said the broad facts about the deterioration of locomotive and wagon stock, as portrayed by Mr. Walkden, were not disputed, but obviously for the moment they were beyond the capacity of the railway companies. One could not dispute the fact that it was there, first because before the war, in many respects, capital equipment had not been kept up to the standard that possibly it should have been; secondly, for six years the railways had had to carry a really abnormal strain of heavy traffic. Yet the railways were not treated as a War Department. They had not got the same facilities of priority that the Army, Navy, Air Force, and munitions factories had had, with the result that there had been this accelerated process of deterioration. After the war, there

had been no pause for re-tooling, establishing new plant, and so on.

Last year, there had been a general demand for increased passenger services. Pressure had been brought on the Minister of Transport on the ground that the general industrial population had experienced six years of stress and strain and was entitled to a little relaxation with regard to holidays. Members, at one period of the year, had first pressed for increased facilities, and then, in another complained that they had been granted.

The winter passenger services were not nearly so great as the services run earlier in the war, but even those services, inadequate as they were, were being carefully combed for the purpose of seeing what economy in locomotives they could yield. The railways were still running passenger services 14 per cent. below what they were during the war. Recent economies had enabled 20 additional locomotives to be secured.

He did not dispute the main essentials of the case Mr. Walkden had put, but 20 per cent. of the wagons—about half were privately-owned—were obsolete and ought to be scrapped. Fifty per cent. of the wagon stock was over age. When there had been a slow accumulation of arrears of maintenance before the war, and a rapid accumulation during the war and since, they could not replace half a million wagons in 12 months with the present condition of labour and materials shortage. One of the first things he had done when he went to the Ministry was to place an additional order for 50,000 16-ton steel wagons to assist the general situation. During 1946, there had been an output of about 30,000 new wagons, half of which would be available to carry coal.

AUSTERITY LOCOMOTIVES

Dealing with the "austerity" engines built for war purposes, Mr. Barnes said many had been built in this country, some brought back, and, recently, another 200 made available. All needed extensive repair. The railway and privately-owned workshops were working to capacity with the timber and steel supplies available. The problem could not be solved readily and easily by plans for training establishments and increasing the labour supply.

The present productive capacity in railway and private workshops was not being fully used because of labour and materials difficulty. Despite that, steps were being taken to prepare some of the railway shops used for munitions production during the war, and they were moving towards release. So far as plant and labour and materials could be obtained, they would be put into operation as quickly as possible.

Mr. Walkden: Is it not true that, in a good many instances, evidence can be found that labour is now regularly leaving the industry?

Mr. Barnes said he readily admitted that, but they could not lift the Essential Work Order without recognising that they had to face a period in which labour was likely to be shifting. Surely, that was a desirable position to reach, even if it represented temporary difficulties.

The supply of sleepers was reaching a serious position. The necessity of getting timber supplies was as urgent and vital a factor in getting transport moving as the building of wagons or locomotives.

He assured members that their comments would be carefully noted and that everything that could be done, both by the railway companies and the Government, would be done.

Questions in Parliament

L.N.E.R. Hunstanton Hotel

Major F. J. Wise (King's Lynn—Lab.) on December 16 asked the Minister of Transport for what purpose he proposed to occupy the Fordingham Hotel, Hunstanton, which had been vacated by the military authorities.

Mr. Alfred Barnes (Minister of Transport), in a written answer, stated: I assume Major Wise refers to the Sandringham Hotel. This is the property of the London & North Eastern Railway Company, and in due course will pass to the British Transport Commission under the Transport Bill. Meanwhile, it remains in the occupation of the company.

Railway Fares

Mr. Edward Davies (Burslem—Lab.) on December 16 asked the Minister of Transport what reasons prevented the introduction of provincial railway fares on a par with bus fares for similar journeys, and the inter-availability of tickets.

Mr. Alfred Barnes, in a written answer, stated: Bus fares are related to individual services and local conditions, and vary widely in different localities. Railway fares are, generally, on a standard basis applicable throughout the country, so that local adjustments would create anomalies as between different parts of the railway system.

Even if parity of fares were established, inter-availability of tickets would not, in many cases, be practicable for operational reasons.

Accident on Stratford Line

Mr. Arthur Lewis (West Ham, Upton—Lab.) on December 16 asked the Minister of Transport whether he was satisfied that the recent underground railway accident on the Stratford line had not been caused through neglect; what inquiry into the cause was contemplated; and if he would make a statement in connection with the matter.

Mr. Alfred Barnes stated in a written answer: This accident occurred when one empty train overtook and collided with the rear of a stationary one between Stratford and Leyton; the section of line on which the collision occurred is not yet opened for passenger traffic. I regret to say that one of the Board's staff was killed and three seriously injured. An Inspecting Officer of Railways has been appointed to hold an inquiry into the accident, and, until his report has been received, I must reserve any statement on the cause or causes.

Locomotive Construction

Lt.-Colonel G. M. Sharp (Spen Valley—Lab.) on December 16 asked the Minister of Supply how many locomotives had been built for Government use during the last few years; how many of those were still under the control of his department; and how many were not in use though suitable for allocation to the railway companies.

Mr. John Wilmot (Minister of Supply), in a written answer, stated: Up to 1946, some 1,739 heavy freight and shunting steam locomotives, 4 ft. 8½ in. gauge, have been built in the United Kingdom to the order of the Ministry of Supply. The only locomotives coming under my control are those declared surplus. These have all been allocated, with the exception of 237 heavy freight locomotives which are at present awaiting repair before they can be used. In addition, a number of locomotives now abroad is

available for disposal in North-West Europe. A few of these are suitable for immediate use on the home railways and are being brought back. Consideration is being given to the repair of the remainder for use in this country.

Appeal Tribunals

Wing-Commander N. J. Hulbert (Stockport—C.) on December 9 asked the Minister of Transport if he would now make a statement about further appointments to complete the constitution of the appeal tribunals which he was required to set up under the provisions of clause 15 of the Road & Rail Traffic Act, 1933; or when he anticipated being able to do so.

Mr. Alfred Barnes: I am re-appointing Mr. E. S. Shrapnell-Smith, C.B.E., to be a member of the Road & Rail Appeal Tribunal. I regret I am not yet in a position to announce the name of the second member, but hope to be able to do so before the recess. The Chairman is Mr. Gleeson E. Robinson, lately Commissioner for the Metropolitan Area.

Railway Stocks

Mr. Thomas Reid (Swindon—Lab.) on December 16 asked the Minister of Transport if he would make a statement on railway stocks on which no dividends, or dividends of less than 2½ per cent., had been paid in the peacetime years 1936, 1937, and 1938.

Mr. Alfred Barnes stated in a written answer: The nominal amount of railway stocks of the main-line railway companies on which no dividends were paid in respect of the years 1936, 1937, and 1938 amounted to £7 millions, £78 millions, and £363 millions respectively. The corresponding figures in respect of stocks on which dividends of less than 2½ per cent. were paid are £193 millions, £193 millions, and £43 millions respectively.

Railway Resignations

Mr. J. A. Sparks (Acton—Lab.) on December 17 asked the Minister of Transport how many railway employees, including shopmen, had resigned their employment with the four main-line railway companies since the withdrawal of the Essential Work Order.

Mr. Alfred Barnes stated, in a written answer, that 25,172 railway employees, including shopmen, had resigned their employment with the four main-line railway companies since the withdrawal of the Essential Work Order, excluding retirements under age rule, or deaths.

Over-Age Railway Officers

Mr. J. A. Sparks (Acton—Lab.) on December 20 asked the Minister of Transport how many junior and senior officers of all classes at present employed by the railway companies were above the normal retiring age of 60 years; and what proportion did they bear to the total number employed.

Mr. Alfred Barnes, in a written answer: The number of staff in receipt of salaries of £500 per annum, excluding war advance, and over, employed by the main-line railways or on the railways of the London Passenger Transport Board, is 3,139, and of these 608, or approximately 19 per cent., are above the age of 60 years.

Temporary Railway Employees

Mr. J. A. Sparks (Acton—Lab.) on December 20 asked the Minister of Transport if he would state the number of railway employees, excluding shopmen, who were temporarily employed; and what pro-

portion they bore to the total of staff employed.

Mr. Alfred Barnes, in a written answer, stated: I regret that it has not been possible to compile this information in the time available, but I will circulate the answer in the Official Report as soon as possible.

Railway and Canal Companies' Dwellings

Major John Morrison (Salisbury—C.) on December 16 asked the Minister of Transport how many tied houses and cottages would become State property under the nationalisation of transport.

Mr. Alfred Barnes, in a written answer, stated: I have no precise figures of such properties, but on the information available, about 28,000 houses and cottages, owned by the railway and canal companies specified in the third schedule of the Transport Bill for occupation by their employees, will be transferred to the British Transport Commission under Part 2 of the Bill. This estimate does not include properties forming part of any railway or stations.

Rail Transport of Timber

Mr. Edward Davies (Burslem—Lab.) on November 25 asked the Minister of Transport what restrictions there were on the movement of timber by rail from Hull and other north-eastern ports to Midland towns, including Stoke-on-Trent; and what steps were being taken to avoid congestion and delay in view of the need for expeditious deliveries for housing purposes.

Mr. Alfred Barnes stated in a written answer: No restrictions have been imposed by the railways during recent months which would hinder the movement of timber from Hull to Stoke-on-Trent.

There was a restriction from October 23 to 28 which prevented movement from West Hartlepool to Stoke. Movement to some Midland towns may be affected at present by the restrictions which limit movement southwards via Doncaster, Sheffield, or Normanton. The need for these restrictions arises mainly from a shortage of locomotives, and all possible steps are being taken to ease the situation.

Wireless Communication on Railways

Sir Wavell Wakefield (Marylebone—C.) on December 2 asked the Minister of Transport what steps had been taken to provide crews of trains and those controlling train movements with modern wireless communication equipment so that they could talk with other trains and control stations in the same ways as ships and aircraft, instead of using the present century-old system of dropping messages on paper, waving flags, blowing whistles, putting detonators on the line, and other obsolete methods of communication and warning.

Mr. Alfred Barnes: The possibilities of wireless communication have been the subject of experiment by the railways for some months past. Certain difficulties require to be overcome, and, when the necessary equipment becomes available, the tests will be continued.

Sir Wavell Wakefield: Will the Minister not bring pressure to bear on the Postmaster-General to stop obstructing the use of the latest developments of science on the railways, for public safety?

Mr. Barnes: I think that question had better be put down to the Assistant Postmaster-General.

Motive Power Depot Conditions

Mr. Thomas Brown (Ince—Lab.) on December 9 asked the Minister of Transport if his attention had been drawn to the bad conditions now prevailing at the motive power depot, Springs Branch, near Wigan, L.M.S.R., where 200 men were employed; and what steps were being taken to remedy them, to prevent men leaving the employment of the company.

Mr. Alfred Barnes, in a written answer, stated: No, but I have made inquiries and am informed that work is to be put in hand to renew the roof and improve the lay-out of No. 1 shed. Progress, however, is hampered by shortage of staff. The extension of the canteen, delayed by lack of material, is now in progress.

Transport between Tanganyika and Rhodesia

Brigadier H. R. Mackeson (Hythe—C.) on December 18 asked the Secretary of State for the Colonies what plans had been made concerning transport between Tanganyika and Northern and Southern Rhodesia.

Mr. A. Creech Jones (Secretary of State for the Colonies): The Tanganyika Railways operate a road service southward to Mbeya, and a Northern Rhodesia operator provides a service for passengers and goods between Mbeya and also Abercorn and the Rhodesia Railways system. The expansion of this link will depend on public demand and no definite projects are under consideration.

Palestine Railways Freight Service

Major E. A. Legge-Bourke (Isle of Ely—C.) on December 18 asked the Secretary of State for the Colonies what steps were being taken to avoid the necessity of the Palestine Potash Company stopping production; and what stocks were available.

Mr. A. Creech Jones: The Palestine Railways resumed a full-time freight service yesterday; and it is expected that the transport of potash to Haifa will return to normal within a few days. The stock of potash accumulated due to the interruption of the railway freight service amounts to 20,000 tons.

Damage to Palestine Railways

Major E. A. Legge-Bourke (Isle of Ely—C.) on December 18 asked the Secretary of State for the Colonies how the cost of material damage to the Palestine railways, amounting to £325,000, was to be met; what indemnification for the loss of revenue since November 18 due to suspension of services was to be expected; and from whom.

Mr. A. Creech Jones: The cost of material damage to the Palestine railways and any deficit due to loss of working revenue will be a charge to Palestine funds. No indemnification from any external source is to be expected.

Major Legge-Bourke: Can the Minister say whether that applies to any damage that has happened to the Kantara—Rafa and Hejaz section of the railway, which I understand is owned by His Majesty's Government, and whether the amount of damage is equally distributed all over the various sections of the Palestine railways, and, if so, how much in each case?

Mr. Creech Jones: I should want notice of that question.

Trinidad Government Railways

Mrs. Lucy Middleton (Sutton—Lab.) on November 27 asked the Secretary of State for the Colonies (1) whether she would take steps to ensure that clerical

civil servants employed by the Trinidad Government Railways should be eligible for transfer to other Government Departments; and (2) why clerical workers employed by the Trinidad Government Railways were not eligible for pension on the same terms as were other clerical civil servants.

Mr. A. Creech Jones (Secretary of State for the Colonies) stated in a written answer: The matters referred to in Mrs. Middleton's two questions have formed the subject of a petition addressed to me by the clerical officers of the Trinidad Government Railways, which is at present under consideration. I will inform Mrs. Middleton of my decision on these two matters as soon as possible.

Trinidad Railway Staff Pensions

Mr. T. Driberg (Maldon—Lab.) on December 11 asked the Secretary of State for the Colonies if he had considered the memorial, dated October 19, 1945, submitted to his predecessor by members of the clerical establishment of the Trinidad Government Railways, with regard to their pension disabilities under the provident fund scheme; and how soon he expected to be able to reply to that memorial.

Mr. A. Creech Jones: Yes. As the matters raised in the memorial may be affected by the recommendations of a committee now considering the part to be played by the railway in the future transport system of the Colony, I am unable to reach a final conclusion on them until I have the report of that committee. I have asked the Governor to inform the petitioners in that sense.

L.P.T.B. Officers

Mr. F. A. Cobb (Elland—Lab.) on December 13 asked the Minister of Transport whether, in the interests of the efficient operation of the L.P.T.B., he would take steps to secure the immediate appointment of a full-time Vice-Chairman, General Manager, and Chief Engineer of the Board.

Mr. Alfred Barnes stated in a written answer: The matter is under consideration by the Board, and I am awaiting its proposal.

L.P.T.B. 3 per cent. Guaranteed Stock

Lt.-Colonel Nigel Birch (Flint—C.) on December 10 asked the Chancellor of the Exchequer whether, in view of the anxiety caused to holders of Government guaranteed securities due to the treatment of London Transport 3 per cent guaranteed stock, he would give an assurance that the terms of issue would be observed in the case of all other Government guaranteed securities.

Dr. Hugh Dalton (Chancellor of the Exchequer): The guarantee would be implemented if default were to take place on this or any other Government guaranteed security.

Colonel Birch: Does the Chancellor of the Exchequer realise the far-reaching nature of the repercussions of this particular decision, and does he realise the effect it might have on money raised under section 2 of the Borrowing (Control & Guarantees) Act?

Dr. Dalton: I have not noticed any particular repercussions of great magnitude in Stock Exchange quotations?

Sir John Mellor (Sutton Coldfield—C.): Will not the Chancellor of the Exchequer agree that the Treasury guaranteed these stockholders 3 per cent. of their money until 1967, which they are not going to get, and, therefore, in their view, there

has been a repudiation of that particular guarantee?

Dr. Dalton: I hope that reasons to show they are wrong will be given when the Transport Bill is debated.

Mr. W. Gallacher (West Fife—Com.) They will get too much anyhow.

Political Advertisements on L.P.T.B. Vehicles

Major J. A. Boyd-Carpenter (Kingston-upon-Thames—C.) on December 16 asked the Minister of Transport whether advertisements of a political character were accepted for display on the premises and vehicles of the L.P.T.B.

Mr. Alfred Barnes: It is the practice of the London Passenger Transport Board to refuse advertisements of a controversial political nature, but to accept those which, for example, merely announce intention to hold a political meeting.

Major Boyd-Carpenter: Does that answer mean that the Minister regards the advertisement displayed by the Electrical Trades Union advocating nationalisation of the electrical industry as uncontroversial?

Mr. Barnes: I have not previously been made aware of the point raised by Major Boyd-Carpenter. If he cares to draw my attention to any matter, I will look into it.

Major Boyd-Carpenter: Will the Minister give instructions that that advertisement is to be withdrawn?

Mr. Barnes: I shall do what I always do—examine the facts first.

Machine Tool Production

Mr. Frederick Lee (Manchester, Hulme—Lab.) on December 16 asked the Minister of Supply at what level was our production of machine tools, wood, and metal in comparison with 1938.

Mr. John Wilmot (Minister of Supply): In 1946 the value of the average monthly production of metal-working machine tools is approximately three times, and that of woodworking machine tools more than double, the pre-war figure.

Lt.-Commander Gurney Braithwaite (Holderness—C.): Can the Minister give any comparison in terms of volume?

Mr. Wilmot: I am afraid not, because machine tools vary. They cannot be aggregated, except under their values, and it should be remembered, also, that there has been a change in the values of these figures.

Ministry of Transport Engineers

Mr. John Lewis (Bolton—Lab.) on December 16 asked the Minister of Transport why it was that men over the age of 40 years were not considered to be eligible for appointment to his department as Assistant Engineers, Mechanical Engineering.

Mr. Alfred Barnes, in a written answer, stated: The regulations governing the competition for appointment of Assistant Engineers in my department were made by the Civil Service Commission, with the approval of the Treasury. The upper age limit of 41 was fixed after consideration of all factors, one of which was the fact that this grade is the junior grade of the engineering staff of the department, and is designed to provide, in due course, candidates for advancement to the senior grades of that staff. The suspension of recruitment throughout the war years has led to an unbalanced age distribution, and, but for the desire to make good opportunities lost to potential candidates by the war, the upper age limit would have been 35, as it was before the war.

The Transport Bill

Below is a further selection of correspondence which has been published recently in *The Times*, and previous stages of which we have reproduced in our last two issues:—

SUBSIDY CONTENTION

I hesitate to ask the courtesy for more space in your columns; but since Mr. Dutfield and Sir Charles Newton now deny that any Government subsidy is implied in the proposals made by the private interests, I must point out that the pamphlet "British Railways and the Future" (page 11), published by the railways last autumn, suggests, as an alternative to any rise in charges on low-grade traffic consequent on the road-rail agreement, assistance from the State which most people would call a subsidy. The L.N.E.R., in its proposals set out in "The State and the Railways," also suggests a system of purchase and leasing of assets by the State which, according to Lord Balfour of Burleigh, speaking in the House of Lords on November 13, would imply an annual saving to the four companies of £5,000,000 to £7,000,000. It is true that his lordship described this as "an alleviation" and "not a subsidy," but the plain man would use the shorter word.

On the main issue at stake—which after all matters most—it has not been denied that passenger road transport has now become largely a private monopoly through the Tilling-railway combine; and Mr. Dutfield and Sir C. Newton admit that, in the case of road goods transport, the licensing system has restricted competition of "possible new entrants into the industry intending to operate over routes already covered"—which was the crux of this part of my argument. It thus remains indisputable that: (1) There are great economies and benefits to be gained from complete co-ordination, which is impracticable without unification of ownership; (2) transport has been tending more and more towards private monopoly or restriction of competition in the last 15 years; and (3) unified ownership except by the State is contrary to the public interest. I also note that no practical and defensible scheme other than the Government's proposals has been put forward in your columns.

May I sum up the general issue in the words of that independent authority, *The Economist*, which said on October 12, 1946: "The main conclusion is that there are substantial real economies that could be derived from a unification of policy within the whole transport industry. The simplest path to unification is by a common ownership, and by far the simplest way to achieve a common ownership is by nationalisation." I fully agree with this, and with that large body of informed transport opinion which believes that on these lines we can build up a great national enterprise that will combine the virtues of unification with the primary aim of a cheaper and more efficient service to the public.

Yours, &c.,
DOUGLAS JAY

House of Commons

A PRACTICAL SCHEME

As Mr. Douglas Jay has quoted part of what I said in the House of Lords, may I be allowed to refer also to that part of my remarks which he omits, and which completely supports the contention of Mr. Dutfield and Sir Charles Newton, and directly contradicts Mr. Jay's assertion?

The annual saving to the four companies of five to seven million pounds proposed in the L.N.E.R. scheme cannot possibly be described as a subsidy to the railway companies, because it is the essence of the plan that the saving should be passed on *in toto* to the trader. The effect would be to permit, for the first time since the rise of the great road transport industry, competition on level terms between road and rail. The L.N.E.R. proposal provides exactly the practical and defensible scheme asked for by Mr. Jay, and it is very regrettable that it should not have received the consideration which it deserves. This plan provides for State ownership of the track: while opening the way to effective integration of road-rail service, it preserves healthy competition; it renders unnecessary the creation of a vast bureaucratic monopoly, and avoids the addition of a colossal burden to the national finances.

I know of no "large body of informed transport opinion" which takes a favourable view of the Government's proposals. As for *The Economist*, the independent authority called in aid by Mr. Jay, I suggest that its opinion published after the appearance of the Bill, and highly critical of it, is more relevant to the discussion than a theoretical passage in favour of unification from an article of October 12.

Yours truly,
BALFOUR OF BURLEIGH

Lloyds Bank Limited,
71, Lombard Street, E.C.3.
January 14

SIR RONALD MATTHEWS URGES PUBLIC INQUIRY

Sir.—It would be wearisome to continue indefinitely arguing about general principles; but may I adduce a few facts to explode some of the contentions urged by Mr. Douglas Jay in his last letter?

Mr. Jay claims that "it has not been denied that passenger road transport has now become largely a private monopoly through the Tilling-railway combine." There are in this country approximately 5,000 public service vehicle operators owning about 50,000 buses and coaches. Of the total fleet of vehicles less than one-sixth is owned by the companies collectively described by Mr. Jay as the "Tilling-railway combine." In this, as in some other matters touched upon in his letter, Mr. Jay shows that light-hearted disregard of attendant circumstances which in another connection has earned for a section of his fellow-citizens the sobriquet of "jay-walker." He quotes, for example, an isolated sentence from *The Economist* setting out some theoretical arguments in favour of transport unification written some weeks before the text of the Bill had been published. But while paying lip-service to the authority of that eminent journal, Mr. Jay conveniently disregards the fact that immediately after the Bill's terms were known *The Economist* made clear its view that "there should be a searching inquiry into the nature of the problem before the Bill is proceeded with."

The Lord Chancellor has stated in the House of Lords that "the facts are known." They may be known to the Government; if so, they should be published and discussed. They certainly are not known to the public, and not even to that "large body of informed transport opinion"—which would appear to be Mr. Jay. This need for full and impartial investigation has been emphasised by the main-line railway companies in "British Railways and

the Future"; and we hope that even now it may not be too late to persuade the Government to set an inquiry on foot and to await its conclusions before rushing through this gigantic measure that seems nowhere to have met with more than lukewarm support, and certainly has been greeted with universal disapproval by users and suppliers of transport alike.

Yours truly,
RONALD W. MATTHEWS
Chairman's Room,
Marylebone Station, N.W.1. January 16

OWNERSHIP OF VEHICLES

Sir Ronald Matthews says that the Tilling-railway combine owns "less than one-sixth" of the total public service vehicles. Since Sir Ronald and his colleagues apparently regard the outside public as too ignorant to be allowed an opinion on transport matters, I am very grateful to him for lifting this corner of the veil. But his statement is partial and misleading: since what matters is not the percentage of all vehicles, but the percentage of vehicles privately owned.

The relevant question is this: of all privately-owned public service vehicles (excluding those owned by London Transport or municipalities), what percentage is owned by companies in which either one of the four railways or Thomas Tilling, British Electric Traction, or Scottish Motor Traction have a direct or indirect interest? I suggest that the percentage is at least 50. (See *Bus and Coach*, June, 1946.)

Yours, etc.,
DOUGLAS JAY
House of Commons, January 17

Notes and News

Institute of Transport Informal Luncheon.—The speaker at the informal luncheon of the Institute of Transport on February 4 next will be the Rt. Hon. Lord Brabazon of Tara, M.C.

Senior Draughtsman Required.—A senior draughtsman for wagons and special railway vehicles is required by Head, Wrightson & Co. Ltd., Teesdale Iron Works, Thornaby-on-Tees. See Official Notices on page 119.

L.N.E.R. Stock Balances.—Balances will be struck on January 30 in respect of the guaranteed, preference, and ordinary stocks of the L.N.E.R. in connection with dividend payments for the six months to December 31, 1946.

Thos. Cook & Son Ltd. Branch Offices.—The above firm recently has opened a branch office in Heelas's Store, Reading; the Manager is Mr. Roy Brown. Mr. J. P. Rushworth, Manager of Thos. Cook & Son Ltd. in Newcastle-on-Tyne, is retiring.

Great Western Railway Stock Balances.—Balances will be struck on January 27 in connection with dividend payments for the six months to December 31, 1946, in respect of the consolidated guaranteed stock, consolidated preference stock, redeemable preference stock, and consolidated ordinary stock of the Great Western Railway Company.

Sierra Leone Railway Vacancy.—A European surveyor, not over 35 years of age, is required by the Government of Sierra Leone Railway Department, for a tour of approximately nine to twelve months. Candidates must have had railway survey experience, covering responsible work in the field (reconnaissance, pre-

liminary, or final location), and should preferably be qualified civil engineers. See Official Notices on page 119.

Signal & Telegraph Inspector Required.—A signal & telegraph inspector, age 25-35 years, is required by the Sudan Railways for service in the Sudan. Candidates should have had workshop and outdoor experience in the installation and maintenance of mechanical signalling, telegraph, tablet, and token, and telephone instruments including train control apparatus, and be able to prepare signal interlocking diagrams and charts. For full details see Official Notices on page 119.

Yorkshire Railway Waggon Co. Ltd.—At an extraordinary general meeting held recently, a special resolution was passed to the effect that the company be wound up voluntarily, and that Mr. E. Duncan Taylor, of 7, Bond Place, Leeds, Chartered Accountant, be appointed liquidator.

Antofagasta (Chili) & Bolivia Dividend.—The board of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. has decided to pay, on February 7, a dividend of 2½ per cent. on the 5 per cent. preference stock in respect of the six months to June 30, 1936. Last year, a payment of 2½ per cent. was made on July 16, clearing the dividend up to 1935, and this was the first payment since 1938.

L.P.T.B. Extension of Time Application.—The London Passenger Transport Board is applying to the Minister of Transport for an Order under the Special Enactments (Extension of Time) Act, 1940. A copy of the draft application may be inspected at the office of the Solicitor to the Board, 55, Broadway, Westminster, S.W.1, from whom copies may be obtained at the price of 6d. each (post free, 8½d.), and to whom any representations against the application must be submitted not later than January 27.

New L.N.E.R. Parcels Vans.—Since July, 1938, the L.N.E.R. has not had a horse-drawn vehicle on the streets of Leicester, and recently there have been added to its fleet of 77 motor vehicles in that city, two 14-h.p. one-ton Commer vans of post-war design. This type of van, which is illustrated below, has a capacity of 300 cu. ft. and is fitted with a roller-blind shutter which gives better protection against weather and theft than the ordinary flap cover. It is being adapted by the L.N.E.R. for parcels delivery generally.

New Type L.N.E.R. Parcels Van



These new Commer parcels vans are doing duty for the L.N.E.R. at Leicester (See paragraph above)

ally, and six more are to be added to the Leicester fleet in the near future. For operational purposes, Leicester is included in the area of the District Manager, Nottingham, who is responsible for 177 motor vehicles, 86 of which are mechanical horses and 91 rigid vehicles, and it is the intention of the company in due course to mechanise all its transport in the district.

Train Service Reductions in Eire.—As a result of a reduction in the allocation of coal to Coras Iompair Eireann (Irish Transport Company), considerable reductions in train service took effect on January 20. In general, passenger trains are running on only four days a week, and for the most part, only one passenger train is scheduled in each direction on the main lines. The suburban rail services, Dublin—Bray—Greystones, Cork—Cobh—Youghal, and Waterford—Tramore, however, continue to run on six days a week, but have been reduced in frequency. As from next Monday, January 27, small branch lines will be closed to passenger traffic, and some to both goods and passenger traffic. These cuts bring the C.I.E. rail services back to the general level which obtained from October, 1941, until last summer. Goods are being accepted at the company's depots only on the days on which trains run, namely, Mondays, Tuesdays, Thursdays, and Fridays, although deliveries continue to be made on six days a week.

L.M.S.R. "Patriot" Engines Converted to Class "6."—As locomotives of the L.M.S.R. 3-cylinder 4-6-0 "Patriot" class fall due for new boilers, they are being rebuilt to take the type "2A" taper boiler as fitted to the converted "Royal Scot" class, and to two of the "Silver Jubilee" class engines. This conversion raises the "Patriot" locomotives from Class "5X" to Class "6." The opportunity is being taken to renew various details such as the cab, smokebox and saddle, cylinders, and the spring suspension, so that the converted engines become virtually identical with the "Silver Jubilee" engines, Nos. 5735 and 5736, which were fitted with the larger boiler, and double blastpipe and chimney, as described in our issue of November 6, 1942. The rebuilding is being carried out to the designs of the Chief Mechanical Engineer, Mr. H. G. Ivatt, M.I.Mech.E. In the first instance, the conversion of 18 of the "Patriot" class engines has been

authorised, and it is intended to complete the work during the present year. An increase of only 1 ton 5 cwt. in the weight of the engines is involved, but the power potentialities are raised out of all proportion to this figure.

Machine Tool Auction Sale.—An auction sale of machine tools will be held at the Ministry of Supply depot, Queens Road, Kilmarnock, Ayrshire, on January 28 and 29, commencing each day at 11 a.m. The auctioneers will be Shirlaw

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices	
			Jan. 21. 1947	Rise Fall
G.W.R.				
Cons. Ord. ...	61½	54½	58	—
5½% Con. Pref. (1950)	126½	107	122½	—
5½% Red. Pref. (1950)	106½	102½	104½	—
5½% R. Charge	140½	122½	134½	—
5½% Cons. Guar.	137½	118½	133½	—
4½% Deb. ...	129½	106	122½	—
4½% Deb. ...	129½	107	123½	—
4½% Deb. ...	130½	114	125½	—
5½% Deb. ...	142½	125	136½	—
2½% Deb. ...	95½	81½	92½	—
L.M.S.R.				
Ord. ...	30½	26½	29½	—
4½% Pref. (1923)	64	52½	61	—
4½% Pref. ...	86	75	82	—
5½% Red. Pref. (1955)	105½	97	102	—
4½% Guar.	108½	100	104	—
4½% Deb. ...	120	103	113½	—
5½% Red. Deb. (1952)	108½	105½	105½	—
L.N.E.R.				
5½% Pref. Ord. ...	7	5	6½	—
Def. Ord. ...	3½	2½	3½	—
4½% First Pref. ...	59½	50	56½	—
4½% Second Pref. ...	29½	25½	29	—
5½% Red. Pref. (1955)	104	97	100½	—
4½% First Guar.	107	98	103	—
4½% Second Guar. ...	101	90	97	—
3½% Deb. ...	104	87½	99	—
4½% Deb. ...	119½	102½	113½	—
5½% Red. Deb. (1947)	101	99	99½	—
4½% Sinking Fund Red. Deb. ...	107½	101½	102½	—
SOUTHERN				
Pref. Ord. ...	79½	70	76	—
Def. Ord. ...	24	19½	23½	—
5½% Pref. (1964)	125	107	121½	—
5½% Guar. Pref. ...	137½	119	133½	—
5½% Red. Guar. Pref. (1957)	115½	107½	112½	—
4½% Deb. ...	129½	105½	122½	—
5½% Deb. ...	159½	125	134½	—
4½% Red. Deb. (1962-67) ...	113½	104½	109½	—
4½% Red. Deb. (1970-80) ...	115½	104½	111½	—
FORTH BRIDGE				
4½% Deb. ...	109	103	104½	—
4½% Guar. ...	105	102	101	—
L.P.T.B.				
4½% "A" ...	133½	120½	127½	—
5½% "A" ...	142½	130½	136½	—
3½% "Guar. (1967-72) ...	108	98	105½	—
3½% "B" ...	128½	117½	123½	—
5½% "C" ...	64½	56½	63½	—
MERSEY				
Ord. ...	34	30	34	—
3½% Perp. Pref. ...	76	69	73½	—
4½% Perp. Deb. ...	117½	103	111½	—
3½% Perp. Deb. ...	98	81	92½	—
IRELAND*				
BELFAST & C.D.				
Ord. ...	8½	6	7½	—
G. NORTHERN				
Ord. ...	41½	31½	38½	—
Pref. ...	63½	52	62½	—
Guar. ...	97½	78½	96	—
Deb. ...	107	97½	106	—
IRISH TRANSPORT				
Common ...	19½	16/9	17/9	—
3½% Deb. ...	107	100	105½	—

* Latest available quotation

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OFFICIAL NOTICES

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:

EUROPEAN SURVEYOR required by the Government of Sierra Leone Railway Department for a tour of approximately 9/12 months. Salary £600 a year plus cost-of-living allowance for single men of £40 a year and for married men £60 a year and separation allowance between £60 and £96 a year according to number of dependants. Outhouse allowance £60. Free passages and quarters. Candidates, not over 35 years of age, must have had railway survey experience covering responsible work in the field (reconnaissance, preliminary or final location), and should preferably be qualified Civil Engineers. Ex-R.E. Officers or Warrant Officers with war-time experience on these lines would, however, be considered. Alternatively, civil engineering students who have completed their training and intend qualifying with railway engineering in view would be considered: such candidates must have had training in the use of the usual survey instruments. Apply at once by letter, stating age, whether married or single, full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/717552 on both letter and envelope.

HEAD, WRIGHTSON & CO. LTD., Teesdale Iron Works, Thornaby-on-Tees, require a Senior Draughtsman for wagons and special railway vehicles. Initiative and imagination essential. Immediate prospects of advancement. Salary around £500 per annum, according to experience.

Allen & Company, Hamilton (telephone: Hamilton 63). Among the 600 machine tools to be offered are many types, full details of which may be found in the catalogue obtainable (price 1s.) from the auctioneers. The machine tools are located partly in the above depot and partly at the Portland Road depot, Irvine, and may be viewed at both places, on production of a catalogue, seven days before the sale.

Crompton Parkinson Limited.—The report for the year ended September 30, 1946, shows a net profit for the year of £440,363, as compared with £434,283 in 1944-45. The directors recommend final dividends of 4 per cent. on the 8 per cent. cumulative first preference stock, 3 per cent. on the 6 per cent. cumulative second preference stock, and 7½ per cent., together with a special cash bonus of 7½ per cent. on the ordinary and "A" ordinary stock. The carry-forward of £797,902 compares with £690,039 brought in.

Peruvian Corporation Debentures.—Approval was given by Mr. Justice Vaisey on December 20 last to the scheme of arrangement of the Peruvian Corporation under which the moratorium on the 6 per cent. debentures is to be extended to December 31, 1948. This confirmation is subject to a meeting of debenture holders being convened by the company by March 31 next, and to the three remaining members of the debenture holders' committee then resigning, but being eligible for re-election. Nominations for the new committee are to be made before January 31.

Through Rates for International Traffic.—A further step forward towards the standardisation of regulations governing through tariffs for international traffic between Great Britain and the Continent has been achieved as the result of a meeting of a Joint Sub-Committee of the Goods Traffic and Accounts & Exchange Committees of the International Union of Railways, which was held recently at the offices at 3, Grosvenor Gardens, S.W.1, of the Continental Traffic Managers' Committee. Reference was made to the earlier negotiations in our issue of November 8, 1946. Draft regulations for the forwarding and accounting of such traffic now have been prepared, which, after approval by the International Union, are proposed to take effect as from March 1, 1947. The delegates to the meeting took part in a conducted coach tour of London, and after-

London & North Eastern Railway Company

NOTICE is hereby given that on Thursday, January 30, 1947, Balances will be Struck in respect of the Guaranteed, Preference and Ordinary Stocks of the Company in connection with dividend payments for the half-year ended December 31, 1946. Dividends will be payable to the persons whose names are registered in the books of the Company on January 30, 1947.

W. H. JOHNSON,
Secretary of the Company
Marylebone Station,
London, N.W.1
January 20, 1947

TANK LOCOMOTIVES. 0-6-0, 4 ft. 8 in. track gauge, cylinders 16 in. x 24 in., tractive effort 21,600 lb., service weight 44 tons 13 cwt. First class condition, for sale.—Apply M.E. ENGINEERING LIMITED, 457, Finchley Road, London, N.W.3. Telephone: Hampstead 7481 (3 lines).

REQUIRED by large South Wales Iron and Steelworks, Assistant Traffic Manager (Operating with Loco. Running experience. Experience of Control Methods an advantage. Age 30-40. State age, experience, salary required, and when available.—Box 53, *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

wards were guests at a luncheon at the Great Western Railway Royal Hotel, Paddington, when Mr. L. H. K. Neil, Continental Traffic Manager, L.N.E.R., presided.

London Transport Improvements in 1947.—Addressing the Tottenham Rotary Club on January 20, Mr. J. H. Brebner, Chief Public Relations & Publicity Officer, London Passenger Transport Board, summarised the improved facilities to be introduced by the board this year. The Central Line will be extended westwards from North Acton to Greenford, running alongside the G.W.R.; and it is expected that the rearrangement of tracks on the Metropolitan Line between Wembley Park and Harrow-on-the-Hill will be completed, permitting improvements in the train service to Uxbridge. The board has approximately 230 new coaches on order for railway services. The first consignment will be received of 500 new buses, which are 5 ft. 8 in. in width, and will be the standard for all future London types.

Glyn, Mills & Co.—The report for the year ended December 31, 1946, is in a more detailed form than hitherto, comparisons being shown with the preceding year. Deposits, at £63,936,135, show a reduction of £3,916,578, due to normal fluctuations in business. The general cash position was strong, the total of £2,135,029 representing 13·7 per cent. of deposits. Advances to customers stood at £11,296,601, as against £13,955,280 a year ago. Investments accounted for £22,280,142 of the total assets of £71,410,003, which compared with £74,106,599 in the preceding year. Other assets included: £5,335,799 (£7,340,376) in coin, bank notes, and balance at Bank of England; £4,018,230 (£3,015,166) balances with, and cheques in course of collection on, other banks in the British Isles; £13,781,000 (£16,110,700) money at call and short notice; £1,412,113 (£1,123,680) bills discounted; and £7,000,000 (£6,500,000) Treasury deposit receipts.

American Aid for Italian Railways.—According to a message from Italy, the Baldwin Locomotive Works, of Pittsburgh, recently submitted a proposal to the Italian Government which, if accepted, would transfer the responsibility for the reconstruction and re-organisation of the Italian State Railways wholly to U.S. interests. The report states that by this plan the Baldwin Locomotive Works would take over the reconstruction of the

Sudan Government

SUDAN RAILWAYS require a Signal and Telegraph Inspector for service in the Sudan. Age 25-35 years. Candidates should have had workshop and outdoor experience in the installation and maintenance of mechanical signalling, telegraph, tablet and token and telephone instruments (including train control apparatus), and be able to prepare signal interlocking diagrams and charts.

The appointment would be on Provident Fund Contract and the starting rate in the following scale would be determined according to age, experience and qualifications.—£E 250-380-420-460-500-560-630-700-770 maximum, if efficiency bar passed after reaching £E 560, if efficiency bar passed, scale extended to £E 920. (£E.1 = £1 0s. 6d.).

Cost-of-living Allowance at the rate of 35 per cent. of pay, subject to a maximum of £E.15 per mensem. At present there is no income tax in the Sudan. Free passage and Outfit Allowance of £E.40 on starting rates up to certain limits. Strict medical examination.

Applications, giving full particulars of age, qualifications and experience should be sent to the Sudan Agent in London, Wellington House, Buckingham Gate, London, S.W.1, marking envelope "Signal Inspector."

STATION DESIGN. A striking example of modern British practice at the important wayside station of Luton. Reprinted from *The Railway Gazette*, July 7, 1944. Price 1s. Post free 1s. 2d.

Italian State Railways system, as well as the supply of locomotives and rolling stock, and would grant Italy a loan of \$1,000 million. For its own part, Italy either would transfer the administration and working of the Italian State Railways to the Baldwin Locomotive Works, or would guarantee the working receipts of the Italian State Railways for a number of years to that company.

L.M.S.R. Extension of Time Application.—The London Midland & Scottish Railway Company is applying to the Minister of Transport for an Order under the Special Enactments (Extension of Time) Act, 1940. A copy of the draft application may be inspected at the office of the Chief Solicitor, L.M.S.R., Euston Station, London, N.W.1, from whom copies may be obtained, price 6d. each, and to whom any representations against the application must be submitted not later than February 1, 1947.

Last of Brunel's Timber Viaducts.—The last two of Brunel's timber viaducts on the G.W.R. system, at Dare and Gamlyn, are now being dismantled. They are 450 and 600 ft. long, and 70 ft. high, and were constructed to carry the Dare goods branch, opened in 1855, over deep valleys near Aberdare. With the closing of the branch to regular traffic after September 1, 1939, the viaducts became redundant. The dismantling is being carried out by a gang of seven men, using a steam crane and hand winches. Some 25,000 cu. ft. of valuable timber will be salvaged and made available for use as shuttering, piling, footbridges, joinery work, and for laying a new floor in a carriage and wagon repair shop at Pontypool Road.

Forthcoming Meetings

January 25 (Sat.).—The Permanent Way Institution (Manchester & Liverpool Section), at the L.M.S.R. District Engineer's Office, 20, Mount Street, Manchester, 2, 3 p.m. "Renewals of Pre-fabricated Track by Crane," by Mr. N. W. Swinnerton.

February 3 (Mon.).—The Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. 6 p.m. "Electrical Timing Circuits," by Mr. H. J. W. Riddle.

Railway Stock Market

Business in stock markets has continued on a heavy scale; last Monday's 19,438 total of recorded dealings was the highest daily figure since pre-war times. Many factors combined to increase profit-taking after last week's substantial rise in industrial equities, but selling, although fairly widely spread, was not heavy, and buyers reappeared for leading industrials on any easing of prices. The Government's White Paper on manpower and production emphasised the serious factors in the outlook.

The latest fuel developments also affected sentiment, particularly in the iron and steel section; United Steel, Colvilles, Dorman Long and Stewarts and Lloyds eased after recent gains, although this was due to slowing up of demand more than to actual selling.

There was again a fair amount of activity among locomotive engineering and allied shares, with Beyer Peacock 25s., Vulcan Foundry 3s. 9d. North British Locomotives 29s. 3d. and G. D. Peters 5s. ordinary 20s. British Funds became less firm with a number of fractional gains, conflicting views being current whether Mr. Dalton will be able to intensify his cheaper money policy. Oils failed to hold all previous gains, although Shell moved higher on balance.

Apart from the less firm trend of markets generally, there was a variety of developments tending to slow up business in home railway stocks. In the first place, the electricity supply compensation terms have in effect added to the securities, which, like home rails, can be regarded as a means of acquiring at 2½ per cent. Government stock at a discount. It is true that it cannot be

assumed that the latter will necessarily be issued at par, but this is generally expected to be the case. Moreover, if more than a short view be taken, the outlook for the Transport and Electricity stocks will turn mainly on whether during the next twelve months or so the Government is successful in forcing down long-term borrowing rates still further.

Furthermore, there are the forthcoming railway dividends, which it is generally assumed, will be slightly below the previous year's payments, as withdrawals from reserves, etc., are now precluded by the stipulations of the Transport Bill. Moreover, the reassembly of Parliament after the Christmas recess brings near the standing committee stage of the Transport Bill. Despite the fact that the Electricity Bill appears in many ways to be based on the Transport Bill, there seem to be continued hopes in some quarters that the committee stage may result in various amendments and modifications in respect of home railway nationalisation.

Although at one time home rail stocks strengthened a little, small selling has predominated, leaving quotations fractionally below last week's levels. Great Western has declined on balance to 57½, after touching 58, and the 5 per cent. preference at 122½ and the 4 per cent. debentures (also at 122½) were lower on the week. Similarly, L.M.S.R. has eased from 30½ to 29½, although the senior preference was maintained at 82½, and the 1923 preference at 6½.

L.N.E.R. first preference was 56½, compared with 57 at the end of last week; the second preference receded from 29½ to 28½. Southern deferred was 23½, or the

same as a week ago, and the preferred at 76 was also unchanged on balance, although best levels were not fully held. In other directions, London Transport "C" at 63½ declined a point below the level of a week ago, reflecting conflicting views of the dividend position in relation to the stipulations of the Transport Bill. Incidentally the "take-over" price in respect of Transport "C" stock is 67½, or well above the current price. London Transport 4½ per cent. "A" stock has also receded from 128½ to 127½, the 5 per cent. "A" from 138½ to 137 and the 5 per cent. "B" from 124 to 123. In these cases current prices are also well below "take-over" levels.

There has been a reaction in Argentine rail stocks, latest news from Buenos Aires suggesting a deadlock in respect of the negotiations concerning the capital of the new company. A report that the Argentine Government may be considering outright purchase was later denied. Señor Miranda's statement of the Argentine Government's "limit" of the equivalent of £125 millions as the capital of the new concern had an adverse effect on the market in Argentine railway stocks, prices moving back, although it appeared that very little selling was in progress. Comparison with a week ago shows that Buenos Ayres Great Southern has eased from 12½ to 12, but the 5 per cent. preference at 43 was slightly better on balance, although the 4 per cent. debentures receded from 86½ to 84½. Similar movements prevailed among stocks of the other Argentine railways, debentures being most affected. Elsewhere, United of Havana 1906 debentures were better in expectation of a new capital scheme.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week		No. of week	Aggregate traffics to date			Shares or Stock	Prices		
			Total this year	Inc. or dec. compared with 1944/5		Totals		Increase or decrease		Highest 1945	Lowest 1945	January 21, 1947
			1946/7	1945/6		1946/7	1945/6					
South & Central America												
Antofagasta	834	12.1.47	£ 39,120	£ 8,700	2	£ 70,290	£ 60,060	+ 6,515	10,230	Ord. Stk.	12	81 92
Arg. N.E.	753	11.1.47	ps. 322,900	+ ps. 32,000	28	ps. 8,825,400	ps. 8,446,200	+ ps. 379,200	10	54 15		
Bolivar	174	Dec., 1946	4,279	- 863	52	51,910	58,425	- 6,515	6 p.c. Deb.	8½	5½ 61	
Brazil	...	...	...	...	...	...	...	...	Bonds	25	17 26
B.A. Pacific	2,771	11.1.47	ps. 2,000,000	- ps. 582,000	28	ps. 62,156,000	ps. 60,297,000	+ ps. 1,859,000	7	5 61		
B.A.G.S.	5,080	11.1.47	ps. 3,944,000	+ ps. 262,000	28	ps. 94,490,000	ps. 90,484,000	+ ps. 4,006,000	Ord. Stk.	134	104 101	
B.A. Western	1,924	11.1.47	ps. 1,362,000	+ ps. 153,000	28	ps. 34,883,000	ps. 33,132,000	+ ps. 1,751,000	Ord. Stk.	124	92 141	
Cent. Argentine	3,700	11.1.47	ps. 3,266,200	+ ps. 60,200	28	ps. 88,417,957	ps. 85,634,550	+ ps. 2,783,407	Ord. Stk.	94	7 9	
Do.	...	...	...	...	...	...	...	...	Dfd.	2½	5
Cent. Uruguay	970	11.1.47	31,616	- 13,100	28	1,014,889	1,065,179	- 50,290	Ord. Stk.	7½	4 10	
Costa Rica	262	Aug., 1946	36,220	+ 4,160	9	73,313	63,153	+ 10,160	Ord. Stk.	16½	13 9	
Dorada	70	Nov., 1946	27,600	- 1,354	48	337,575	330,489	+ 7,086	1 Mc. Deb.	103	102 100½	
Entre Rios	808	11.1.47	ps. 433,900	+ ps. 10,100	28	ps. 11,967,900	ps. 11,846,000	- ps. 121,900	Ord. Stk.	7½	4½ 61	
G.W. of Brazil	1,030	11.1.47	40,800	- 7,100	2	59,430	54,100	+ 5,300	Ord. Stk.	30-	23 20	
Inter. Ctr. Amer.	794	Nov., 1946	ps. 833,362	+ 819,150	48	89,543,915	88,130,214	+ 81,413,701	—	—	—	—
La Guaira	224	Dec., 1946	4,705	- 650	52	67,508	74,152	- 6,644	5 p.c. Deb.	78	70 65	
Leopoldina	1,918	11.1.47	61,878	+ 9,590	2	98,594	83,053	+ 15,541	Ord. Stk.	4½ 3½ 3½	4½ 3½ 4½	
Mexican	483	31.5.46	ps. 1,464,000	+ ps. 459,100	22	ps. 7,706,200	ps. 13,441,600	+ ps. 5,220,200	Ord. Stk.	4	4½ 4½	
Midland Uruguay	319	Dec., 1946	14,771	- 6,303	26	109,866	115,875	- 6,009	—	—	—	—
Nitrate	382	15.1.47	7,771	- 3,245	2	7,771	11,016	- 3,245	Ord. Sh.	75/6	67/6 75-	
N.W. of Uruguay	113	Nov., 1946	5,098	- 662	22	27,692	29,151	- 1,459	—	—	—	—
Paraguay Cent.	274	10.1.47	ps. 63,666	+ ps. 1,984,28	28	ps. 1,765,512	ps. 1,707,791	+ ps. 57,721	Pr. Li. Stk.	79½	77 50	
Peru Corp.	1,059	Dec., 1946	147,153	- 1,946	26	92,202	849,478	+ 70,724	Pr. Li. Stk.	7½	7½ 8½	
Salvador	100	Aug., 1946	c108,000	+ c14,000	9	c190,000	c189,000	+ c1,000	Ord. Stk.	60½	50½ 133	
San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	17½	10½ 18½	
Talat	156	Dec., 1946	3,680	+ 480	26	29,410	15,520	+ 13,890	Ord. Sh.	3	1 1½	
United of Havana	1,301	11.1.47	47,682	- 3,672	28	1,376,430	1,303,724	+ 72,706	Ord. Stk.	—	—	
Uruguay Northern	73	Dec., 1946	1,242	- 637	26	7,887	10,943	- 3,056	—	—	—	—
Canada	23,482	Nov., 1946	9,282,000	+ 705,500	48	91,193,750	99,564,250	- 8,370,500	—	—	—	—
Canadian Pacific	17,037	14.1.47	1,245,000	- 54,000	2	2,253,250	2,416,250	- 163,000	Ord. Stk.	24	14½ 18	
Various	202	30.12.46	22,725	- 5,107	35	185,040	179,450	+ 5,580	Ord. Stk.	131	123 112½	
Barsi Light	204	Sept., 1946	90,848	+ 17,136	52	950,694	920,575	+ 30,119	Prf. Sh.	10	8½ 6	
Egyptian Delta	607	15.1.47	22,167	+ 1,560	41	465,630	437,730	+ 27,900	B. Deb.	71	55½ 73½	
Manila	—	—	—	—	—	—	—	—	Inc. Deb.	97½	85 65	
Mid. of W. Australia	277	Nov., 1946	10,257	- 6,808	22	79,714	81,902	- 2,188	—	—	—	—
Nigeria	1,900	Oct., 1946	328,866	+ 30,729	30	2,594,380	1,607,174	+ 987,206	—	—	—	—
Rhodesia	2,445	Sept., 1946	541,147	+ 24,052	52	6,174,663	6,069,663	+ 105,000	—	—	—	—
South African	13,323	21.12.46	1,278,488	+ 187,197	38	43,789,667	38,608,926	+ 5,180,741	—	—	—	—
Victoria	4,774	July, 1946	1,197,208	+ 29,920	—	—	—	—	—	—	—	—

† Receipts are calculated at 1s. 6d. to the rupee